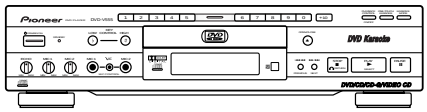
Service Manual



ORDER NO.
RRV2051

DVD PLAYER
DVD-V555

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	DVD-V555		
KU	◯	AC120V	

• Refer to the service guide RRV2004 for DV-515.

CONTENTS

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PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

T – IZE NOV. 1998 Printed in Japan

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians ; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

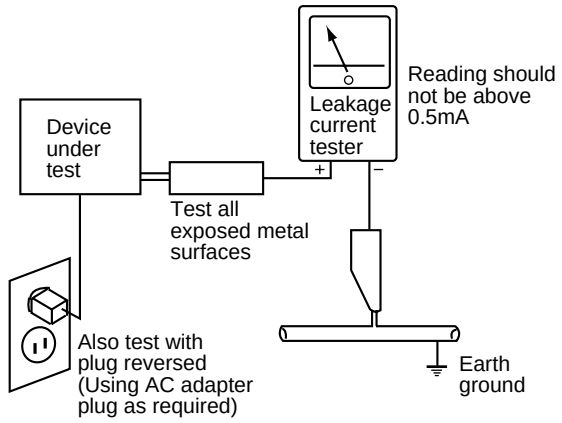
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

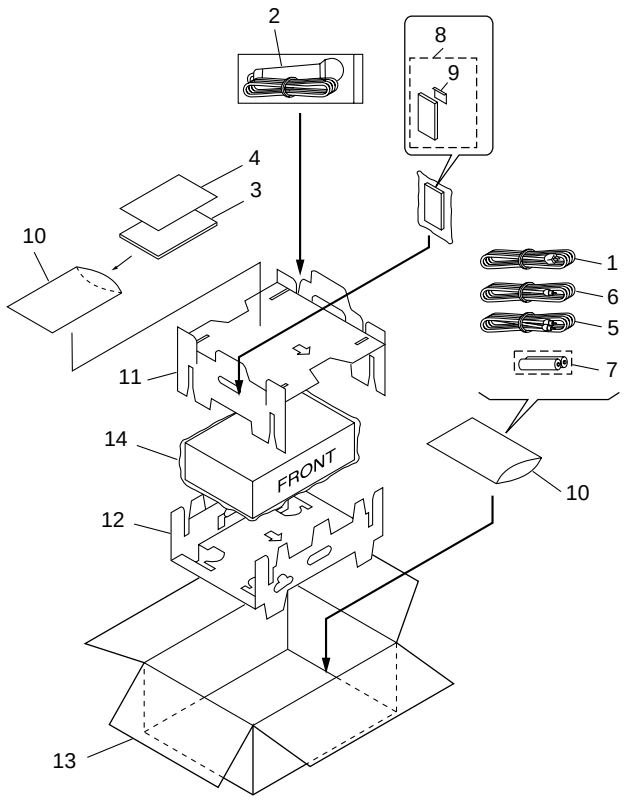
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS AND PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to ▼ mark on the product are used for disassembly.*

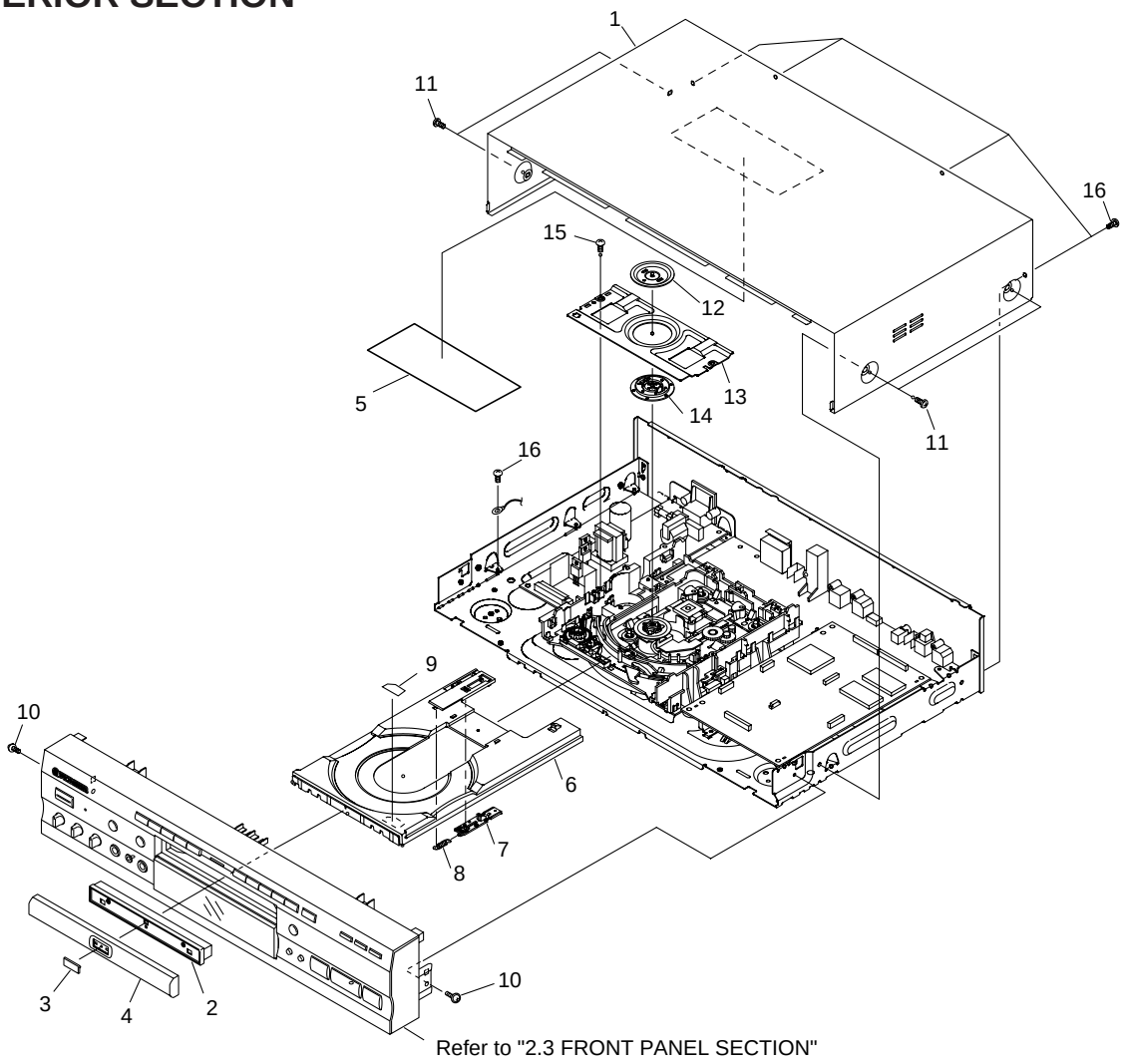
2.1 PACKING



● PACKING PARTS LIST

Mark	No.	Description	Part No.
⚠	1	AC Power Cord	ADG7021
	2	Microphone	VPM1008
	3	Operating Instructions (English)	VRB1210
NSP	4	Warranty Card	ARY7030
	5	Audio Cord	VDE1033
	6	Video Cord	VDE1048
NSP	7	Dry Cell Battery (R6P,AA)	VEM-013
	8	Remote Control Unit(CU-V157)	VXX2616
	9	Battery Cover	VNK3703
	10	Polyethylene Bag	Z21-038
	11	Protector A	VHB1063
	12	Protector B	VHB1064
	13	Packing Case	VHG1776
	14	Mirror Mat Sheet 750x600x0.5	Z23-007

2.2 EXTERIOR SECTION

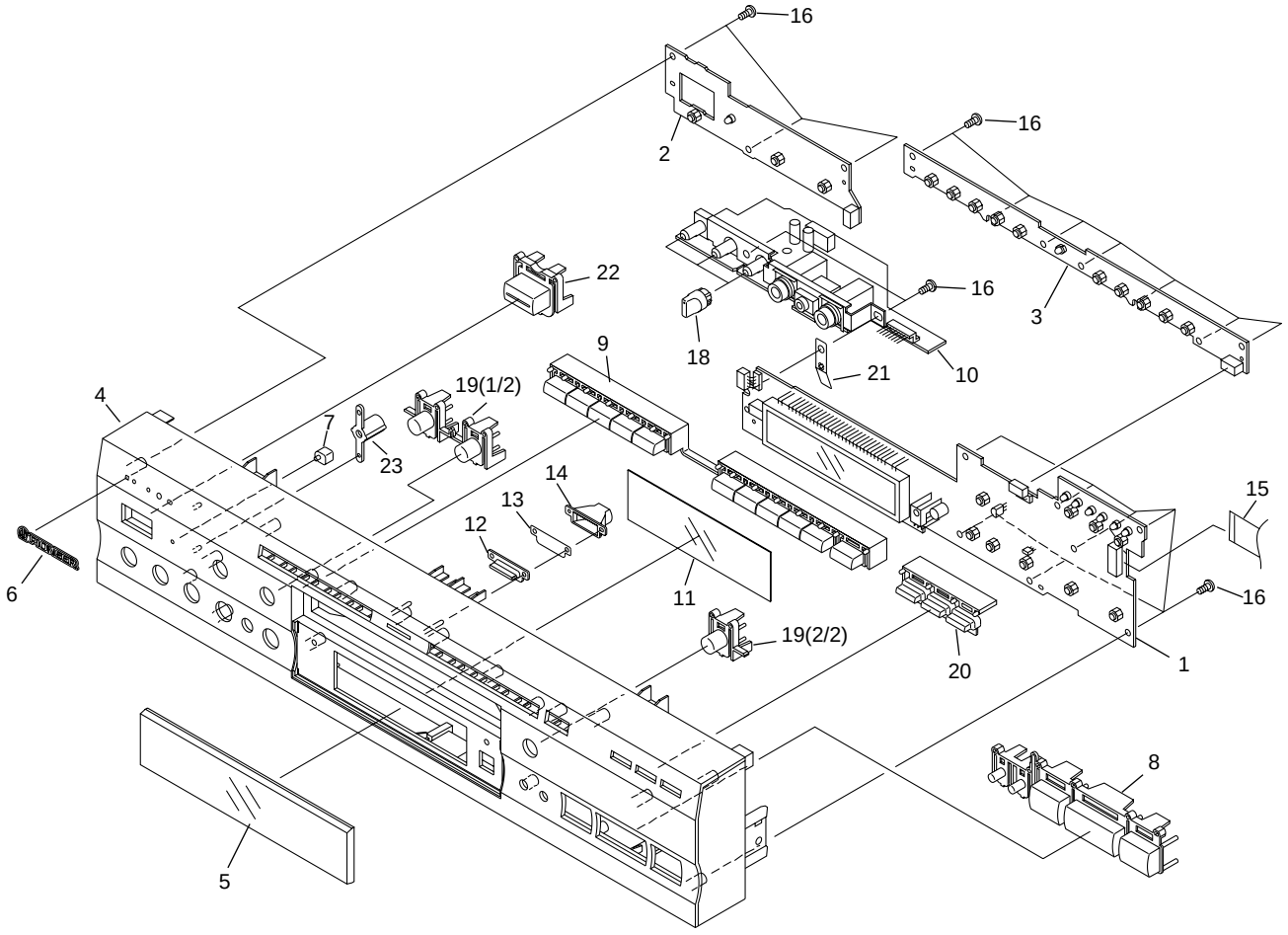


● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Bonnet Case S	VXX2618
	2	Tray Panel	VNK4158
	3	DVD Plate	VAM1080
	4	Tray Panel Plate	VNK4268
	5	65 Label	ORW1069
	6	Tray	VNL1731
	7	Tray Stopper	VNL1739
	8	Spring	VBH1277
	9	Tray Label	VRW1628
	10	Screw	IBZ30P080FMC

Mark	No.	Description	Part No.
	11	Screw	BCZ40P060FZK
	12	Clamper Plate	VNE2068
	13	Bridge	VNE2069
	14	Clamper	VNL1738
	15	Screw	BPZ26P080FZK
	16	Screw	BBZ30P080FMC

2.3 FRONT PANEL SECTION

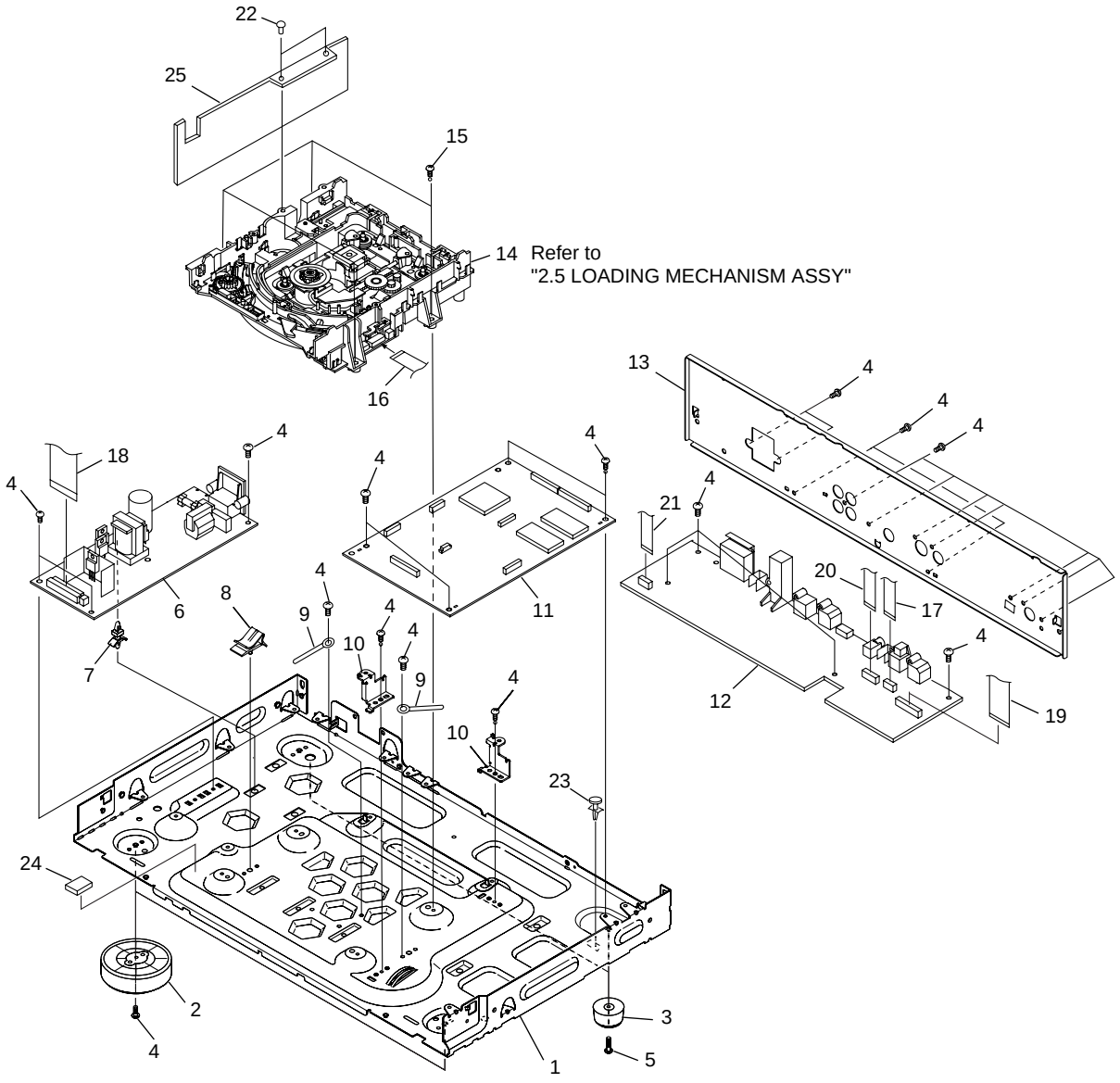


● FRONT PANEL SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FLKY Assy	VWG2022
NSP	2	PWSB Assy	VWG2020
	3	KYLB Assy	VWG2019
	4	Front Panel	VNK4378
	5	FL Lens	VNK4263
	6	Name Plate	PAM1776
	7	LED Lens	PNW2019
	8	Main Key	VNK4258
	9	11 Key	VNK4262
	10	MICB Assy	VWV1644
	11	FL Filter	VEC1722
	12	Illumination Lens	VNK4264
	13	Illumination Filter	VEC1983
	14	Illumination Holder	VNK4265
	15	Flexible Cable (14P) (FLKY CN101 – DVDM CN602)	VDA1646

Mark	No.	Description	Part No.
	16	Screw	BBZ30P080FMC
	17	• • • • •	
	18	Headphone Knob	VNK3756
	19	3 Key	VNK4259
	20	Light Key	VNK4261
	21	Earth Plate	VBK1075
	22	Power Button	VNK4101
	23	Lens Holder	VNK4266

2.4 BOTTOM VIEW SECTION

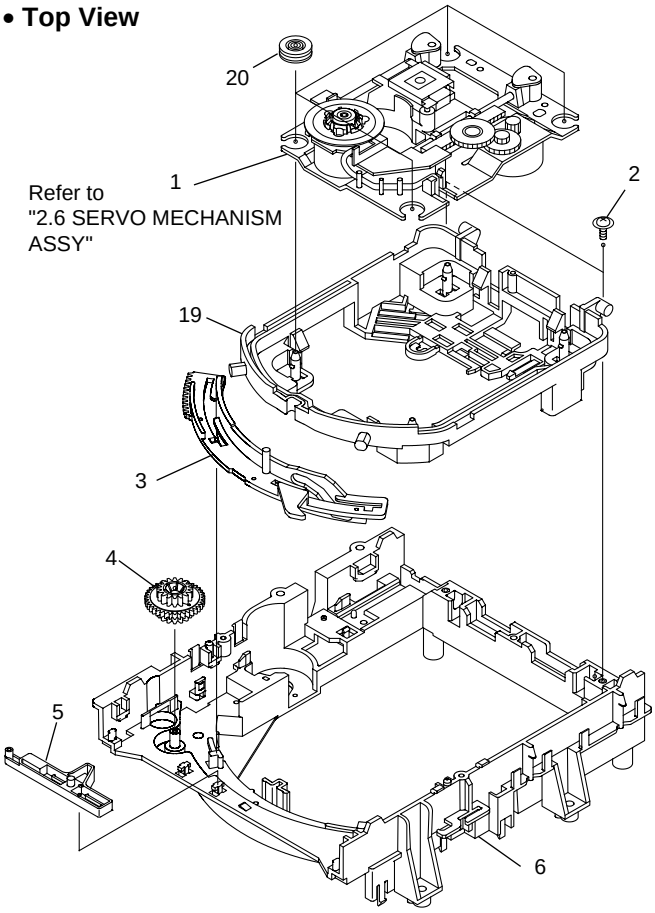


● BOTTOM VIEW SECTION PARTS LIST

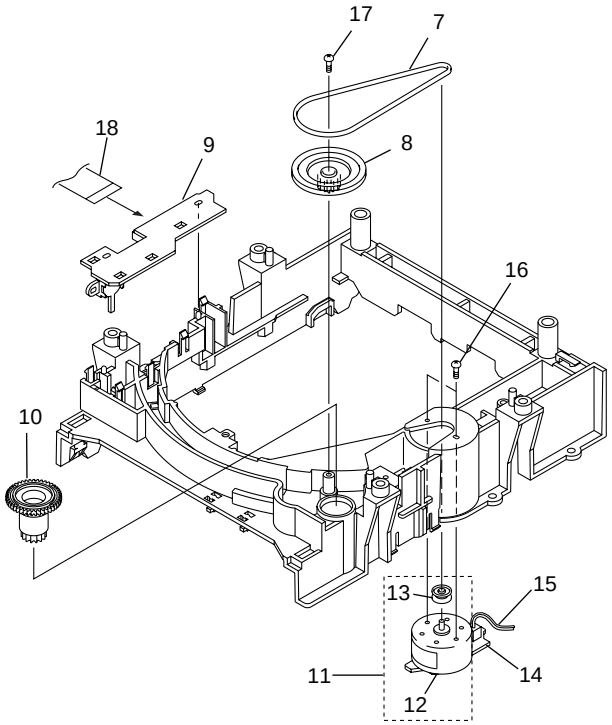
Mark	No.	Description	Part No.
NSP	1	Base Chassis	VNA1981
	2	Insulator	PNW2766
	3	Insulator Assy	VXA1680
	4	Screw	BBZ30P080FMC
	5	Screw	BBZ30P180FMC
⚠	6	POWER SUPPLY Assy	VWR1305
NSP	7	PCB Holder	PNW2100
	8	Flat Cable Clip	VEC2018
NSP	9	Cord Stopper	ZCB-069Z
NSP	10	PCB Holder	VNE2122
	11	DVDM Assy	VWS1367
	12	KGJB Assy	VWV1630
	13	Rear Panel	VNA1961
NSP	14	Loading Mechanism Assy	VWT1157
	15	Screw	BBZ30P100FMC
	16	Flexible Cable (12P) (LOSB CN301 – DVDM CN1030)	VDA1692
	17	Flexible Cable (7P) (KGJB CN503 – DVDM CN104)	VDA1711
	18	Flexible Cable (26P) (POWER SUPPLY CN103 – DVDM CN110)	VDA1689
	19	Flexible Cable (26P) (KGJB CN901 – DVDM CN9020)	VDA1695
	20	Flexible Cable (18P) (KGJB CN501 – DVDM CN9032)	VDA1709
	21	Flexible Cable (9P) (KGJB CN401 – MICB CN402)	VDA1710
	22	Rivet	AEC-525
NSP	23	Card Spacer	DEC1770
NSP	24	Filter Cushion	VEC1287
	25	Sheet	VEC2000

2.5 LOADING MECHANISM ASSY

• **Top View**



• **Bottom View**

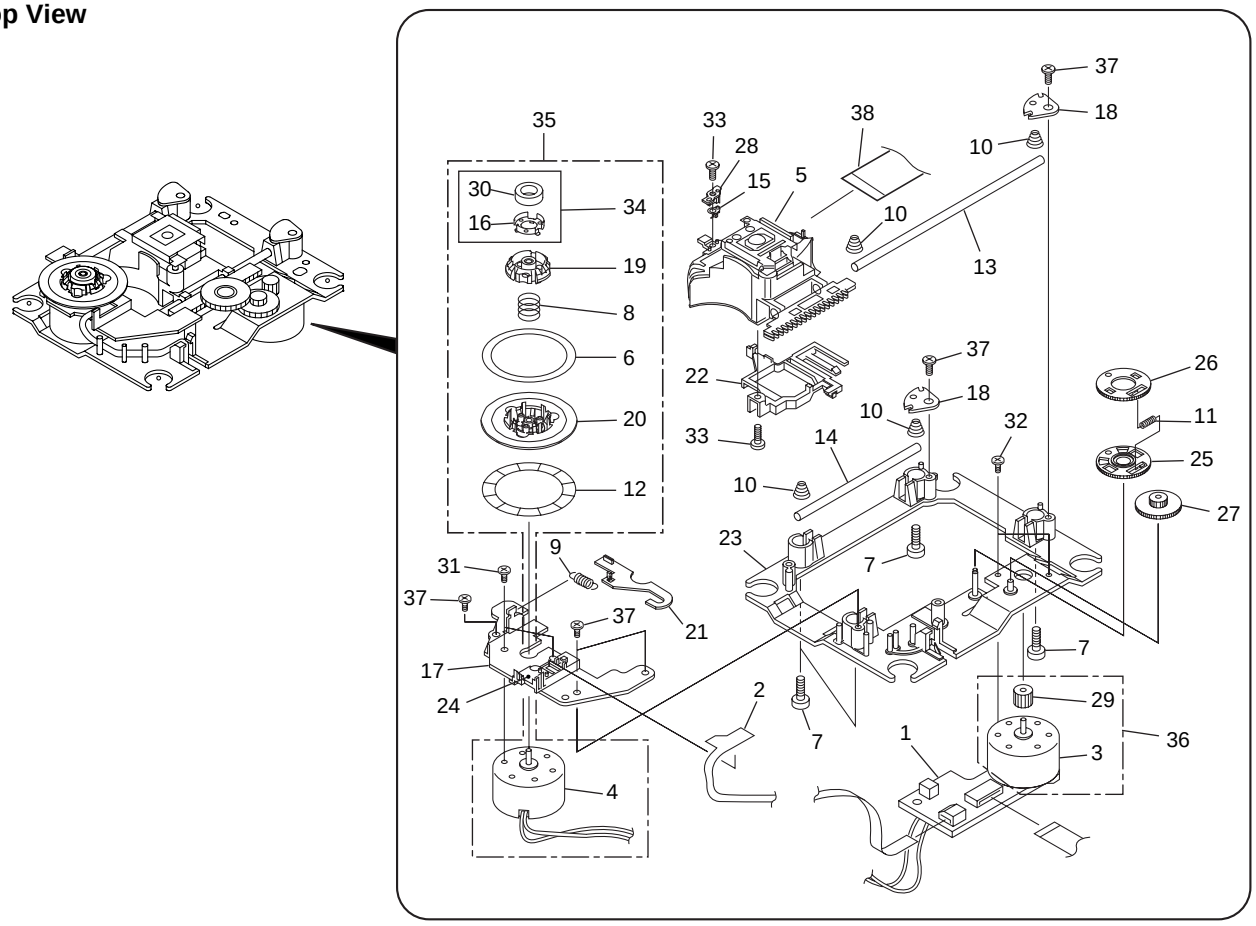


● LOADING MECHANISM ASSY PARTS LIST

Mark	No.	Description	Part No.
	1	Servo Mechanism Assy-S	VXX2606
	2	Screw	DBA1006
	3	Drive Cam	VNL1736
	4	Drive Gear	VNL1735
	5	Lock Plate	VNL1820
	6	Loading Base	VNL1730
	7	Belt	VEB1260
	8	Gear Pulley	VNL1733
NSP	9	LOSB Assy	VWG1885
	10	Loading Gear	VNL1734
	11	Loading Motor Assy	VXX2505
	12	DC Motor / 0.3W	PXM1027
	13	Motor Pulley	PNW1634
NSP	14	LOMB Assy	VWG1886
	15	Connector Assy (LOMB CN401 – LOSB CN306)	VKP2198
	16	Screw	VBA1055
	17	Screw	Z39-019
	18	Flexible Cable (08P) (LOSB CN303 – SMEB CN202)	VDA1698
	19	Float Base	VNL1815
	20	Floating Rubber	VEB1286

2.6 SERVO MECHANISM ASSY

• **Top View**



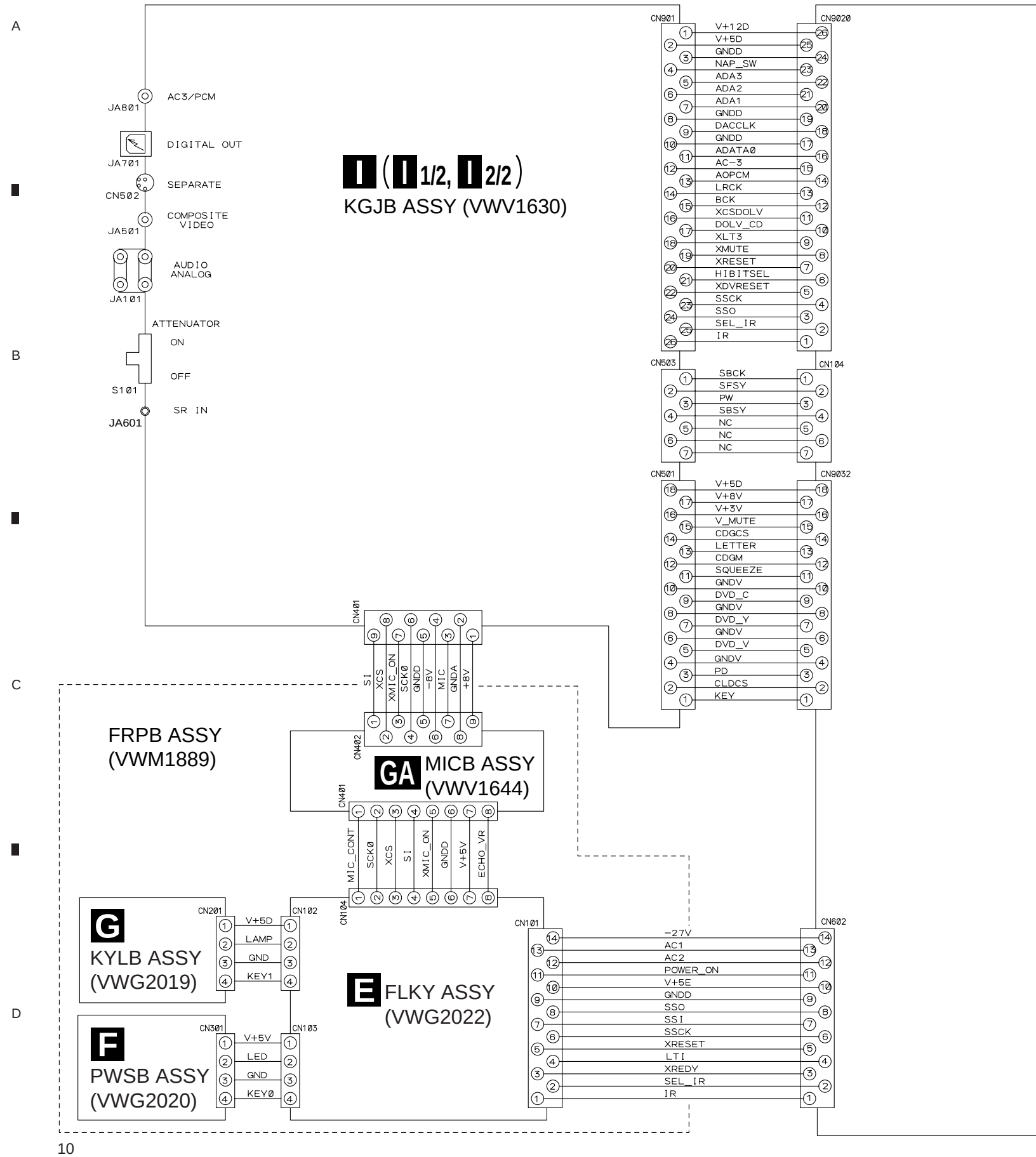
● SERVO MECHANISM ASSY PARTS LIST

Mark	No.	Description	Part No.
NSP	1	SMEB Assy	VWG1968
NSP	2	FGSB Assy	VWG2009
	3	Motor	VXM1074
	4	Motor	VXM1075
⚠	5	Pickup Assy	VWY1050
	6	Table Sheet	DEC2040
	7	Screw	VBA1058
	8	Centering Spring	VBH1278
	9	Hook Spring	VBH1291
	10	Skew Spring	VBH1303
	11	Gear Spring	VBH1308
NSP	12	Reflected Sheet	VEC1959
	13	Guide Bar	VLL1504
	14	Sub-guide Bar	VLL1505
	15	Hold Spring	VNC1017
NSP	16	Magnet Holder	VNE2070
NSP	17	Motor Base	VNE2154
NSP	18	Cover	VNE2155
	19	Centering Ring	VNL1746
NSP	20	Disc Table	VNL1747

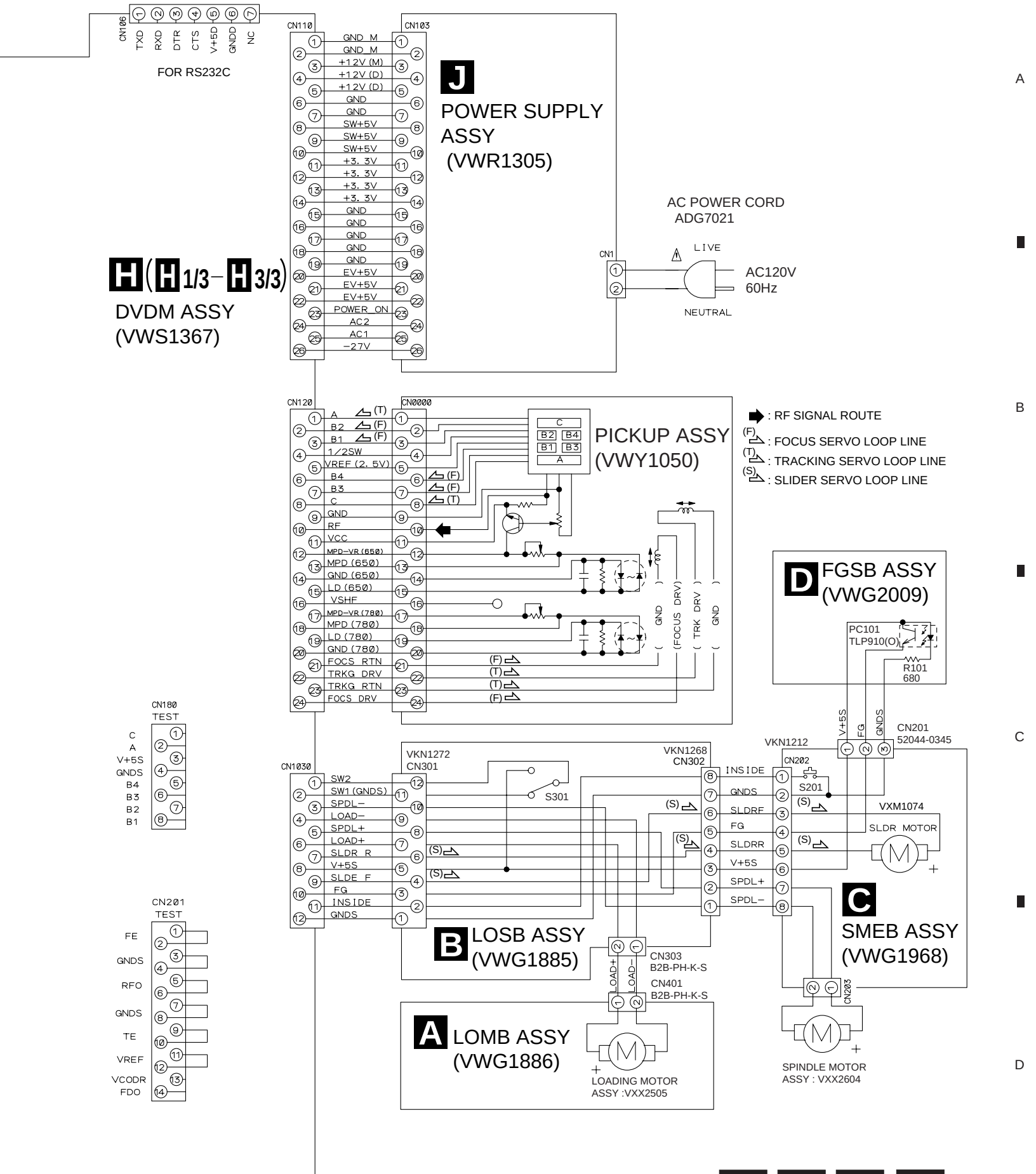
Mark	No.	Description	Part No.
	21	Hook	VNL1770
	22	FFC Holder	VNL1802
	23	Mechanism Base	VNL1806
	24	FG Holder	VNL1807
	25	Gear A	VNL1808
	26	Gear B	VNL1809
	27	Gear C	VNL1810
	28	Slider	VNL1811
	29	Gear D	VNL1814
NSP	30	Magnet	VYM1024
	31	Screw	JFZ17P025FZK
	32	Screw	JGZ17P028FMC
	33	Screw	VBA1051
	34	Magnet Holder Assy	VXX2507
	35	Spindle Motor Assy	VXX2604
	36	Carriage Motor Assy	VXX2605
	37	Precision Screw	PBA1069
	38	Flexible Cable (24P) (DVDM CN120 – Pickup Assy)	VDA1701

3. SCHEMATIC DIAGRAM

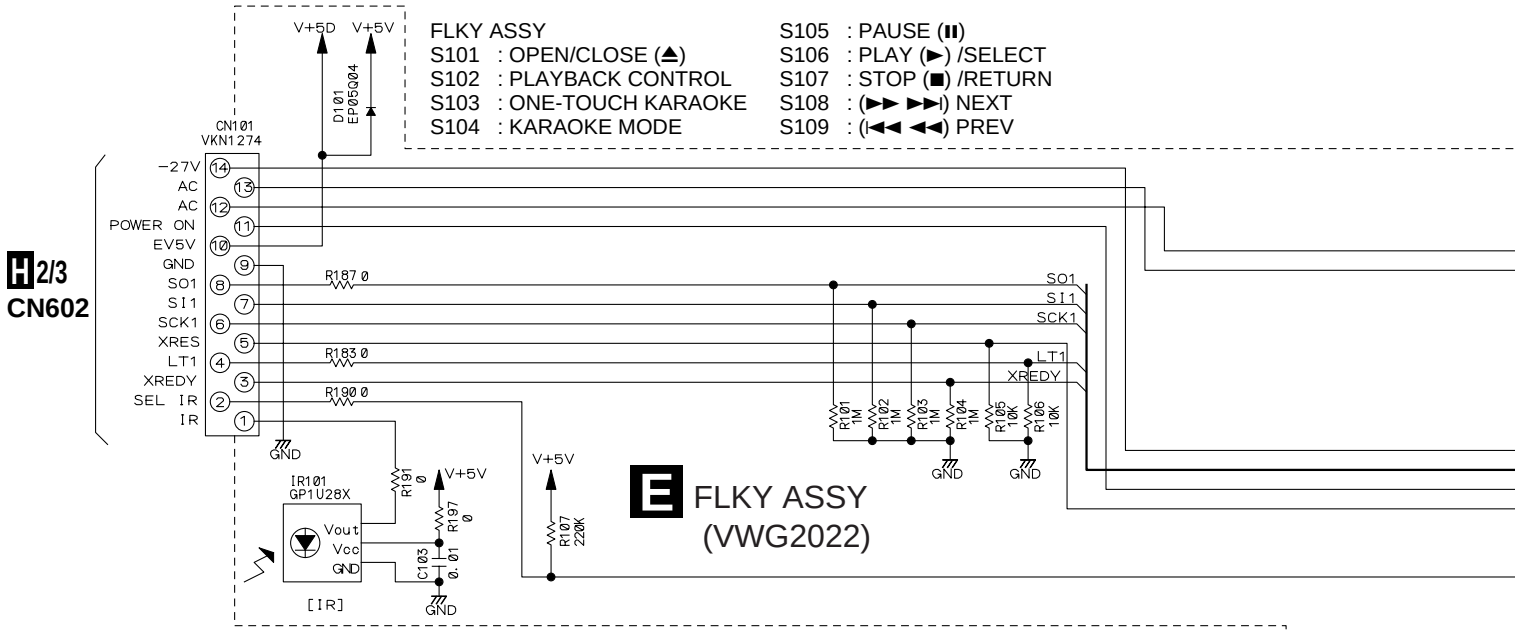
3.1 OVERALL CONNECTION DIAGRAM, LOMB, LOSB, SMEB and FGSB ASSEMBLIES

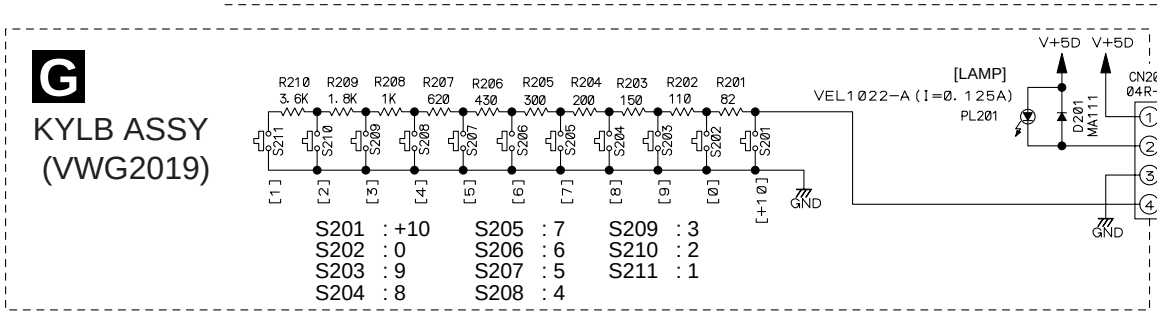


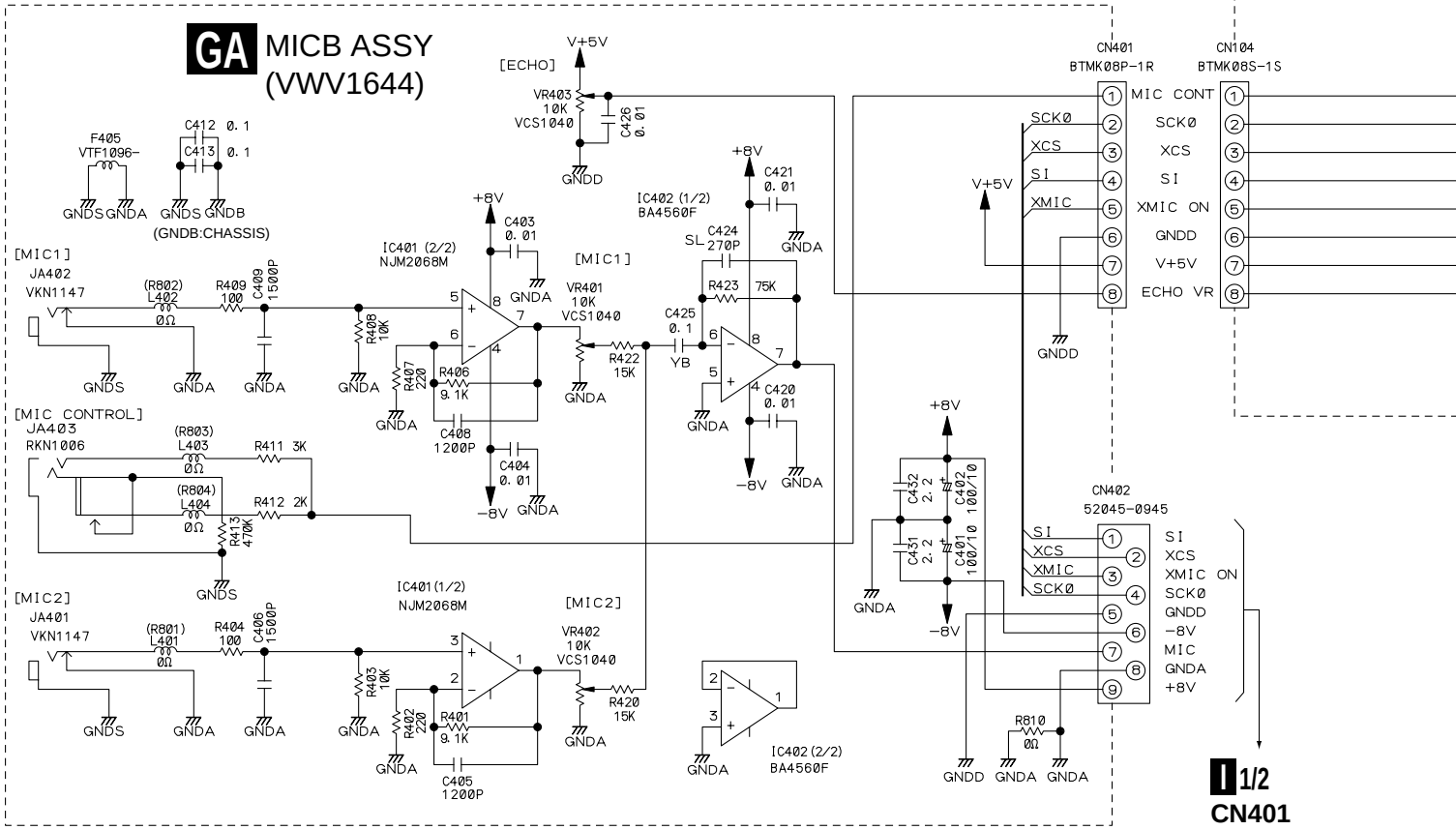
Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

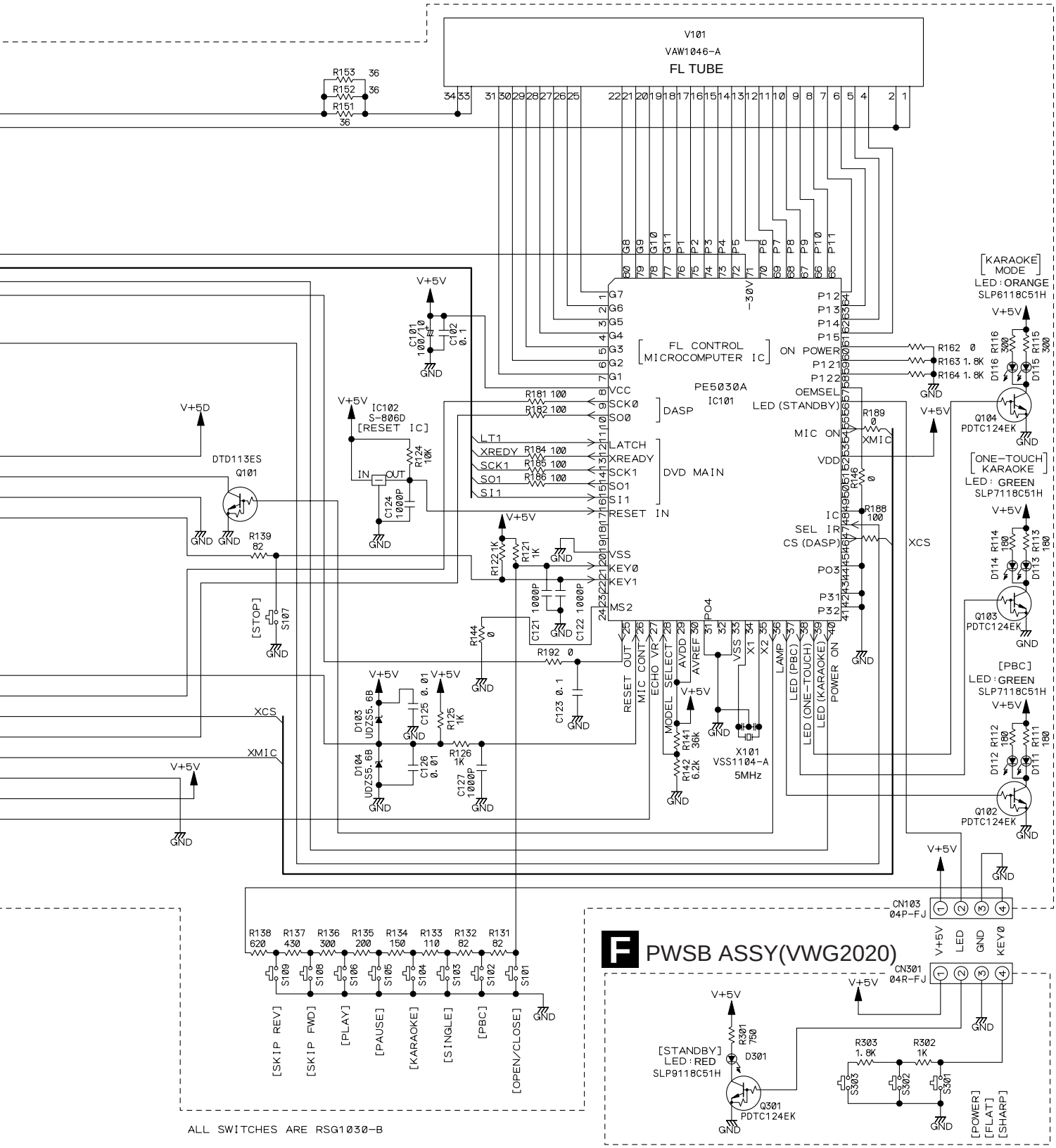


3.2 FLKY, PWSB, KYLB and MICB ASSEMBLIES





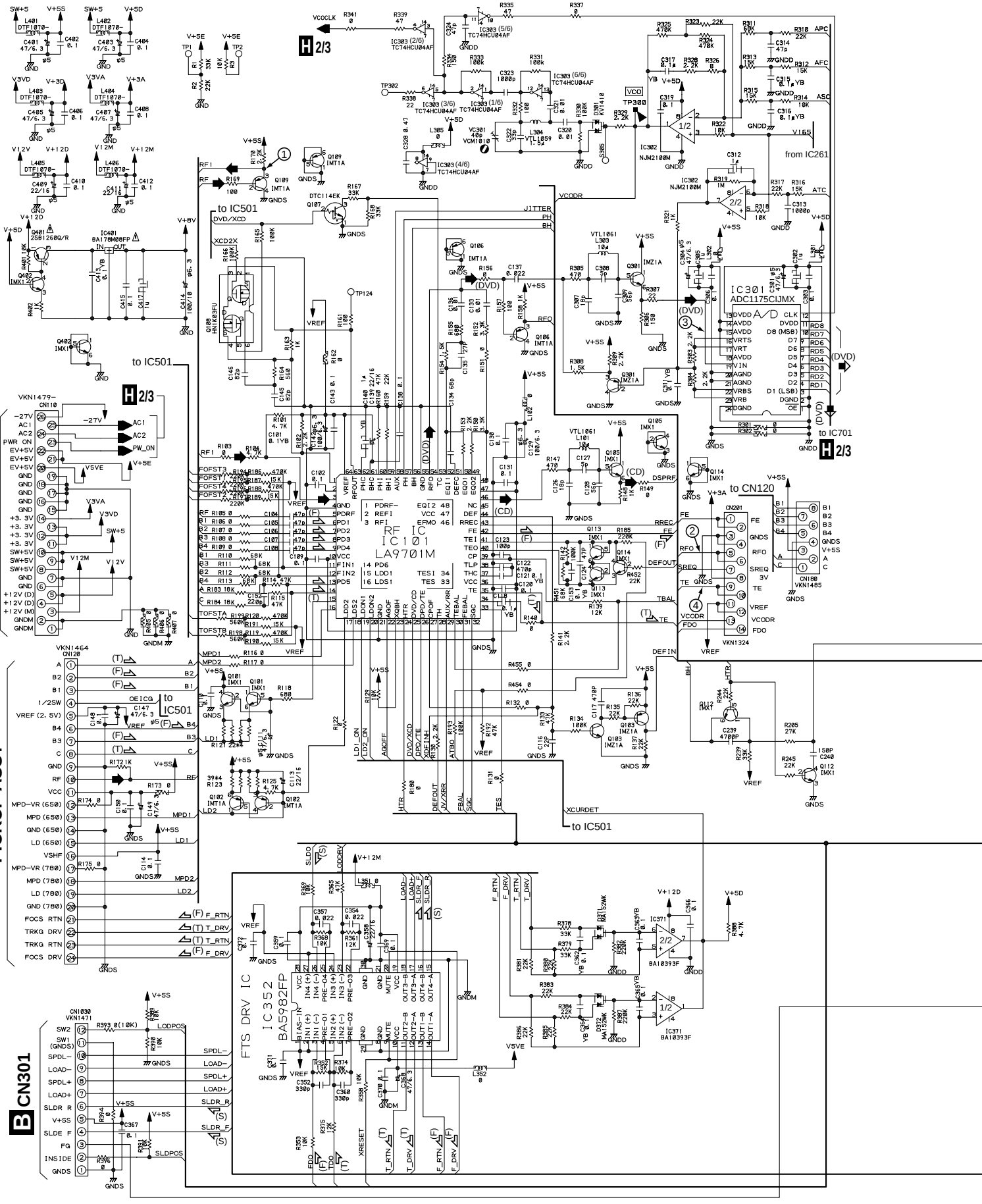




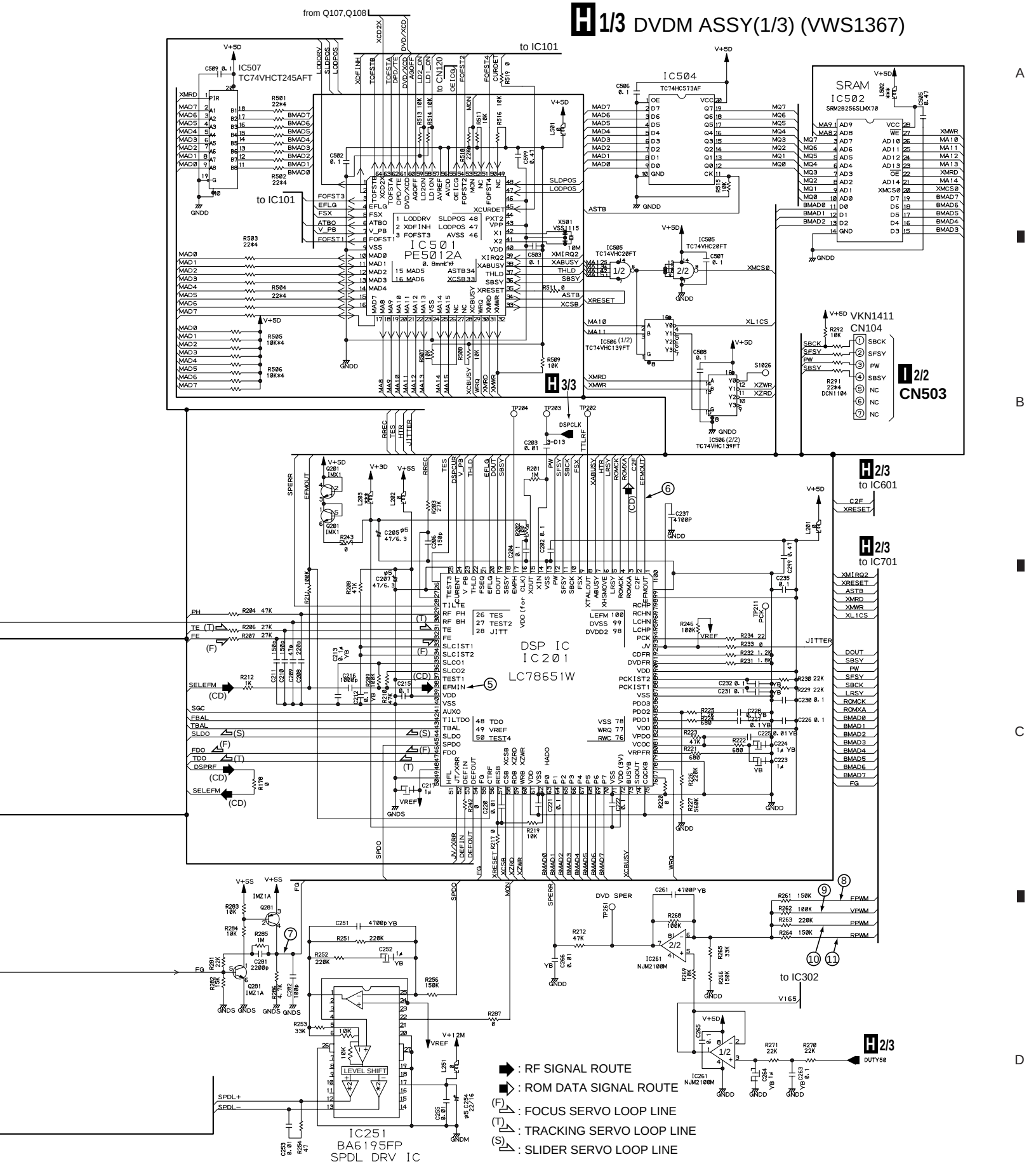
PWSB ASSY(VWG2020)

PWSB ASSY
S301 : KEY CONTROL (♯)
S302 : KEY CONTROL (♭)
S303 : ⏻ STANDBY / ON

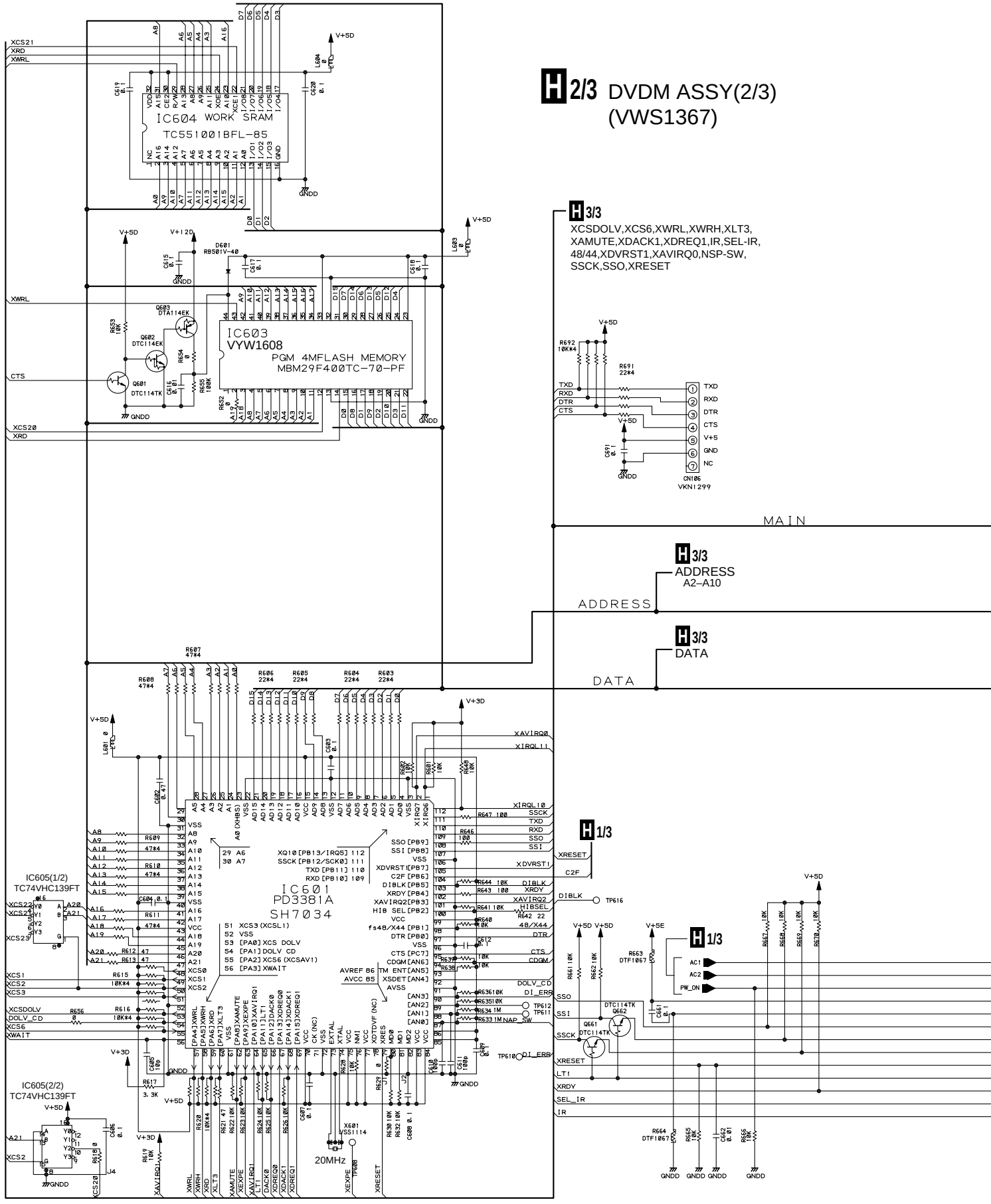
3.3 DVDM ASSY (1/3)

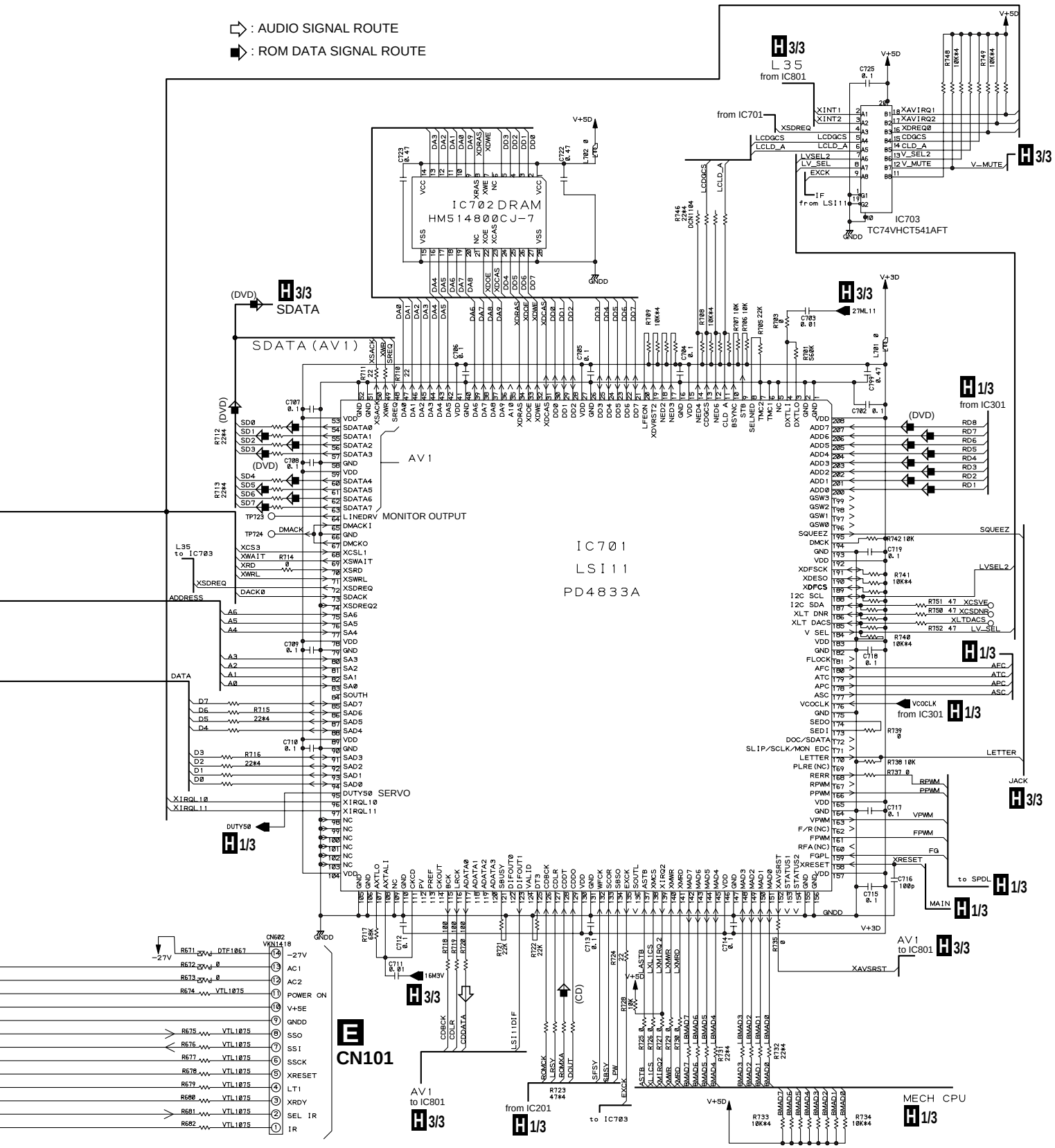


H 1/3 DVDM ASSY(1/3) (VWS1367)

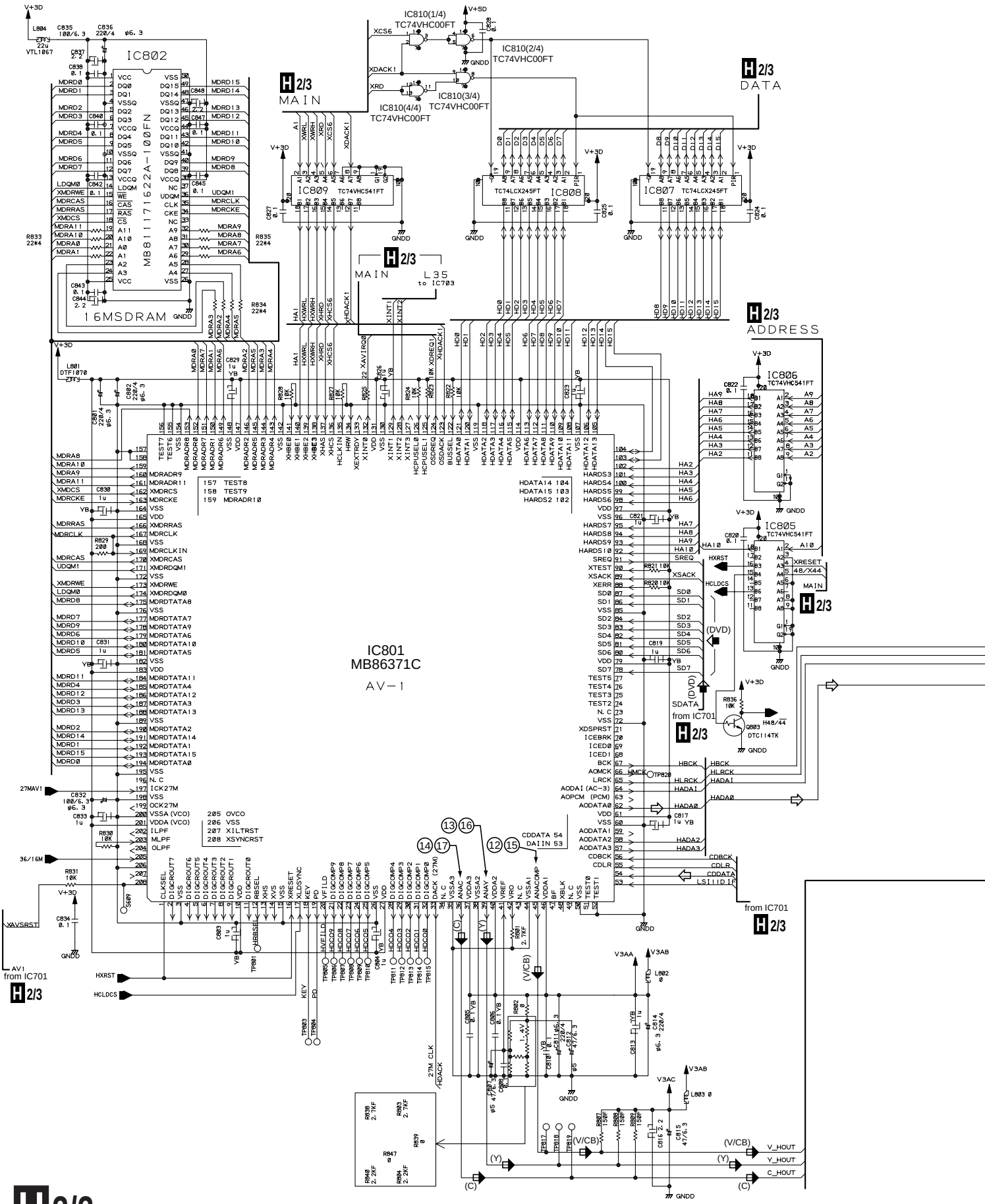


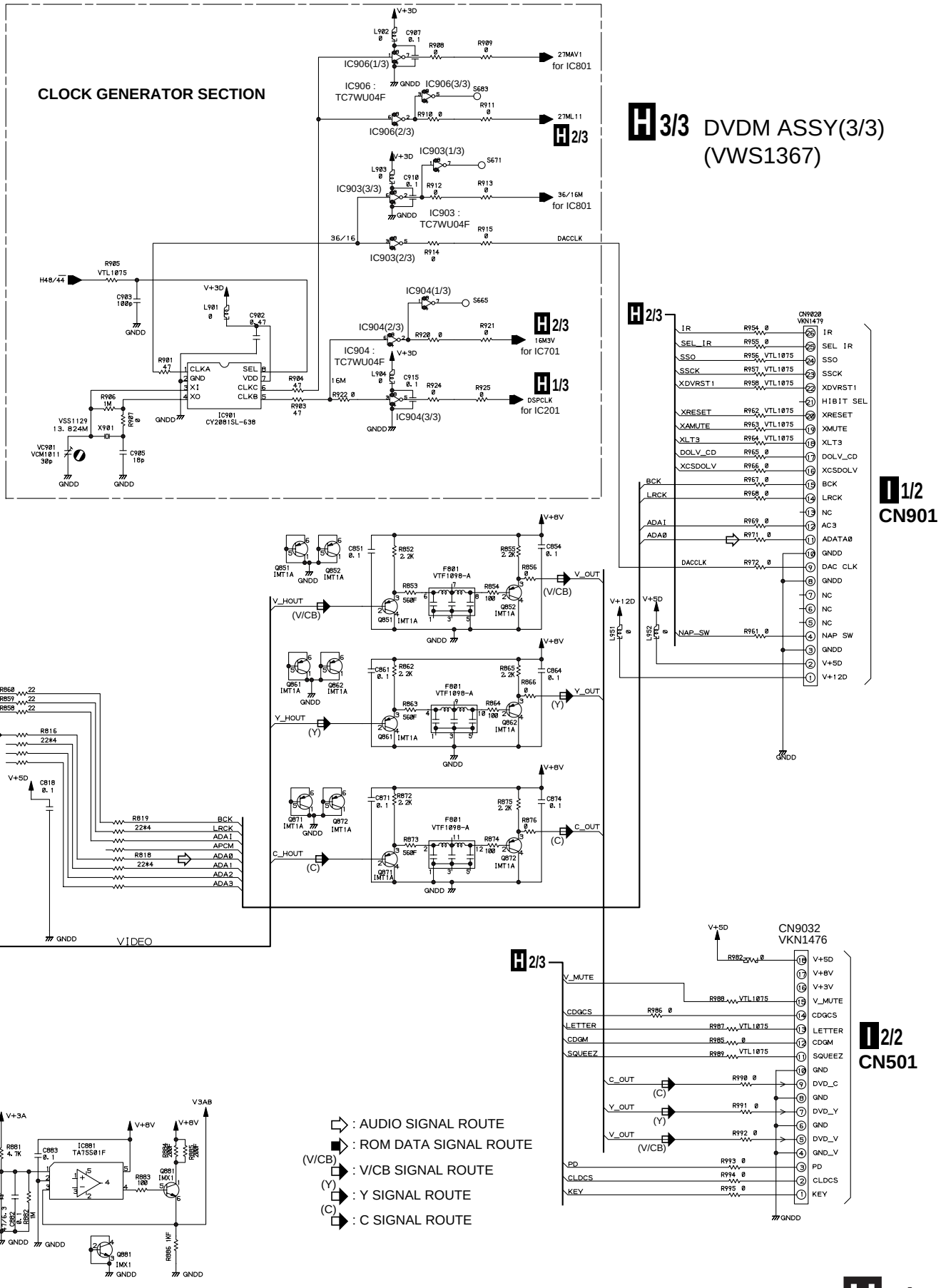
3.4 DVDM ASSY (2/3)




: AUDIO SIGNAL ROUTE
: ROM DATA SIGNAL ROUTE
IC702 DRAM
HM514800CJ-7
IC701
LSI11
PD4833A
IC703
TC74VHCT541AFT
L35
from IC801
from IC701
SDATA (AV1)
AV1
MONITOR OUTPUT
SERVO
DUTY50
DMACK
ADDRESS
DATA
XSDREQ
from IC301
VCOCLK
to SPDL
MAIN
AV1
to IC801
from IC201
to IC703
MECH CPU
CN101
CN602
VKN1418
V+5D
V+3D
GNDD
27ML11
16M3V
XAVSRST
LETTER
JACK
SQUEEZ
LVSEL2
XCSVE
XCSDNR
XLTDACS
LV_SEL
V_MUTE
XRESET
FG
RPWM
PPWM
VPWM
FPWM
AFC
ATC
APC
ASC
(DVD)
(CD)

3.5 DVDM ASSY (3/3)



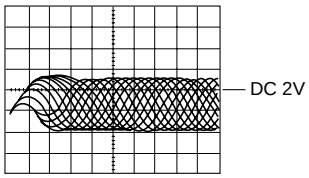

CLOCK GENERATOR SECTION
H 3/3 DVDM ASSY(3/3)
(VWS1367)
IC906(1/3)
IC906 : TC7WU04F
IC906(3/3)
IC906(2/3)
27MAV1 for IC801
27ML11
H 2/3
IC903(1/3)
IC903(3/3)
IC903 : TC7WU04F
IC903(2/3)
36/16M for IC801
36/16
DACCLK
IC904(1/3)
IC904(2/3)
IC904 : TC7WU04F
IC904(3/3)
16M3V for IC701
DSPCLK for IC201
H 1/3
IC901 CY2081SL-638
VSS1129 13.824M
VC901 VCM1011 30p
H48/44
CLKA
GND
XI
XO
SEL
VDD
CLKC
CLKB
V+3D
V+8V
V+5D
V+12D
GNDD
VIDEO
V_OUT
V_HOUT
(V/CB)
(Y)
C_OUT
C_HOUT
(C)
F801 VTF1098-A
Q851 IMT1A
Q852 IMT1A
Q861 IMT1A
Q862 IMT1A
Q871 IMT1A
Q872 IMT1A
BCK
LRCK
ADAI
APCM
ADA0
ADA1
ADA2
ADA3
CN9020 VKN1479
IR
SEL_IR
SSO
SSCK
XDVRST1
HIBIT SEL
XRESET
XAMUTE
XLT3
DOLV_CD
XCSDOLV
NC
AC3
ADATA0
DAC CLK
NAP_SW
I 1/2 CN901
CN9032 VKN1476
V_MUTE
CDGCS
LETTER
CDGM
SQUEEZ
GND
DVD_C
DVD_Y
DVD_V
GND_V
PD
CLDCS
KEY
I 2/2 CN501
IC881 TA75S01F
V3AB
: AUDIO SIGNAL ROUTE
: ROM DATA SIGNAL ROUTE
: V/CB SIGNAL ROUTE
: Y SIGNAL ROUTE
: C SIGNAL ROUTE

• WAVEFORMS OF DVDM ASSY

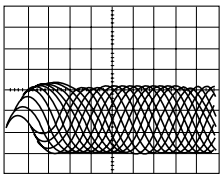
Note : The encircled numbers denote measuring point in the schematic diagram.

Measurement condition : No. 1 to 4 and 6 to 11 : Disc MJK1, Title 1-chp 1
No. 5 : CD, ABEX-784 Track 1
No. 12 to 14 : MJK1, Title 1-chp 4
No. 15 to 17 : MJK1, Title 1-chp 5

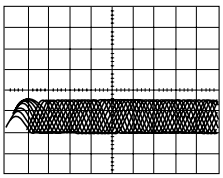
1 Q109-Emitter (RF)
V: 100mV/div. H: 0.1µS/div.



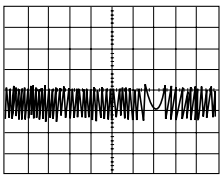
2 TP (RFO)
V: 500mV/div. H: 0.1µS/div.



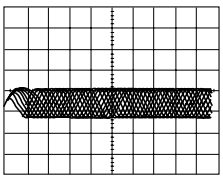
3 IC301-pin 19 (RF for A/D converter)
V: 1V/div. H: 0.2µS/div.



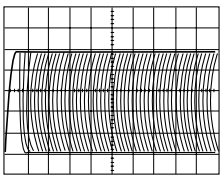
4 TP (Tracking Error)
V: 1V/div. H: 2mS/div.



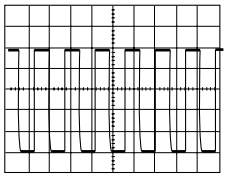
5 IC201-pin 39 (EFM before slice)
V: 1V/div. H: 1µS/div.



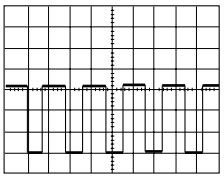
6 IC201-pin 1 (EFM)
V: 1V/div. H: 0.2µS/div.



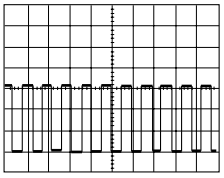
7 Q281-Collector (FG)
V: 1V/div. H: 5mS/div.



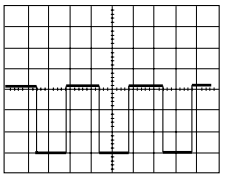
8 Foot of R261 (FPWM)
V: 1V/div. H: 10µS/div.



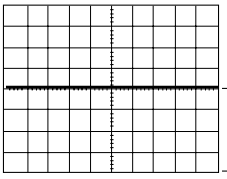
9 Foot of R262 (VPWM)
V: 1V/div. H: 10µS/div.



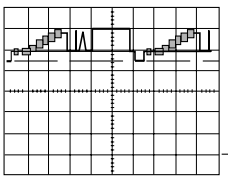
10 Foot of R263 (PPWM)
V: 1V/div. H: 0.2µS/div.



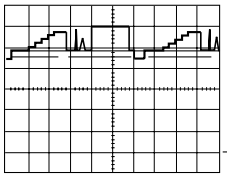
11 Foot of R264 (RPWM)



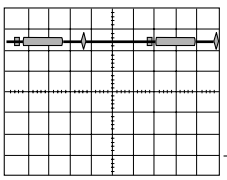
12 IC801-pin 45 (Composite video output)
V: 500mV/div. H: 10µS/div.



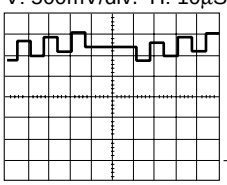
13 IC801-pin 39 (Y output)
V: 500mV/div. H: 10µS/div.



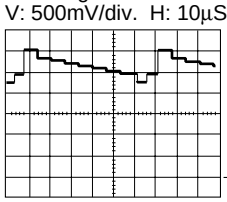
14 IC801-pin 36 (C output)
V: 500mV/div. H: 10µS/div.



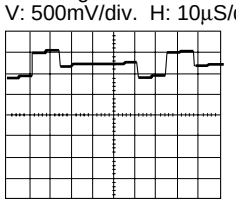
15 IC801-pin 45 (C_B output when selecting color difference output)
V: 500mV/div. H: 10µS/div.



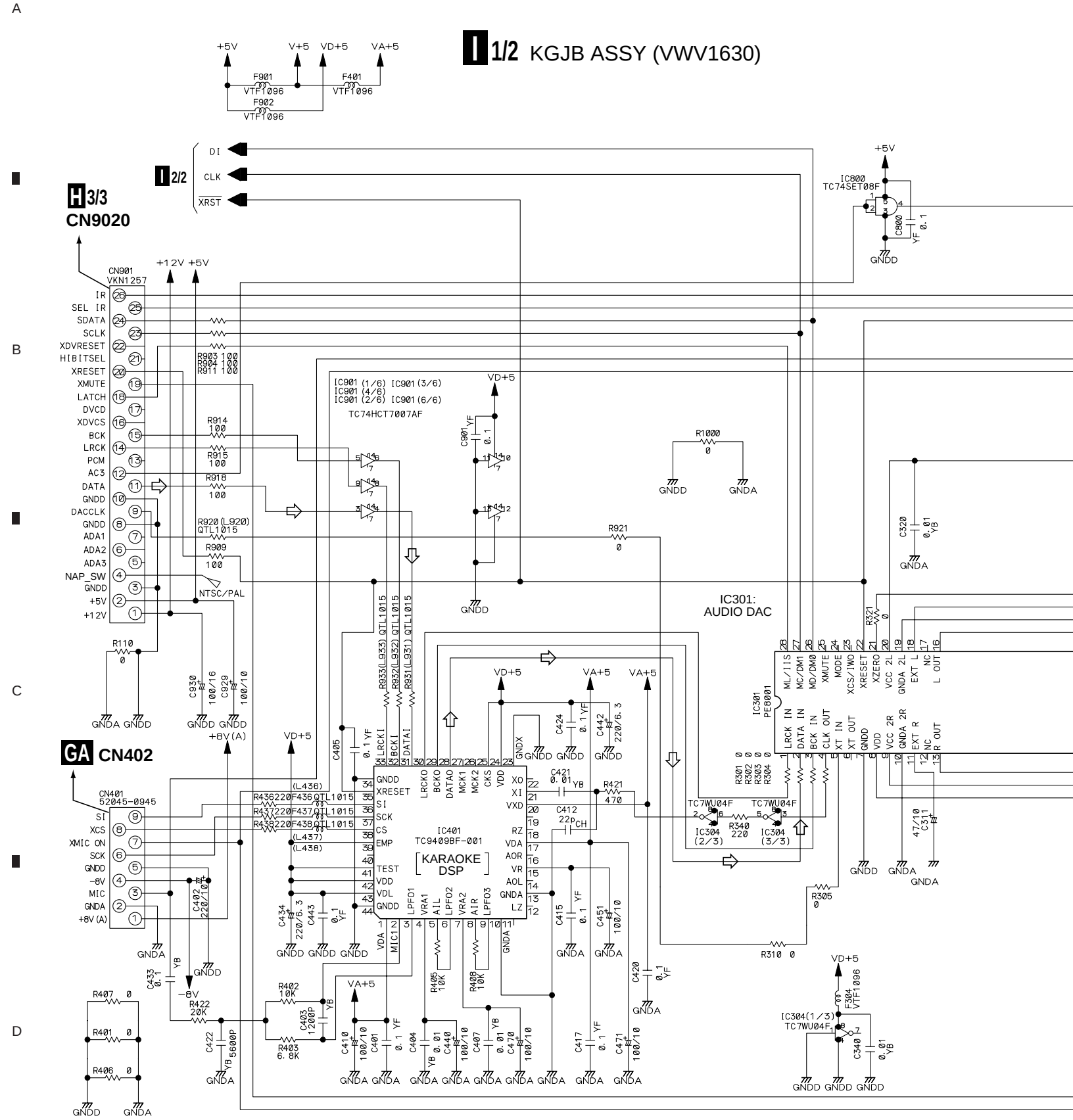
16 IC801-pin 39 (Y output when selecting color difference output)
V: 500mV/div. H: 10µS/div.

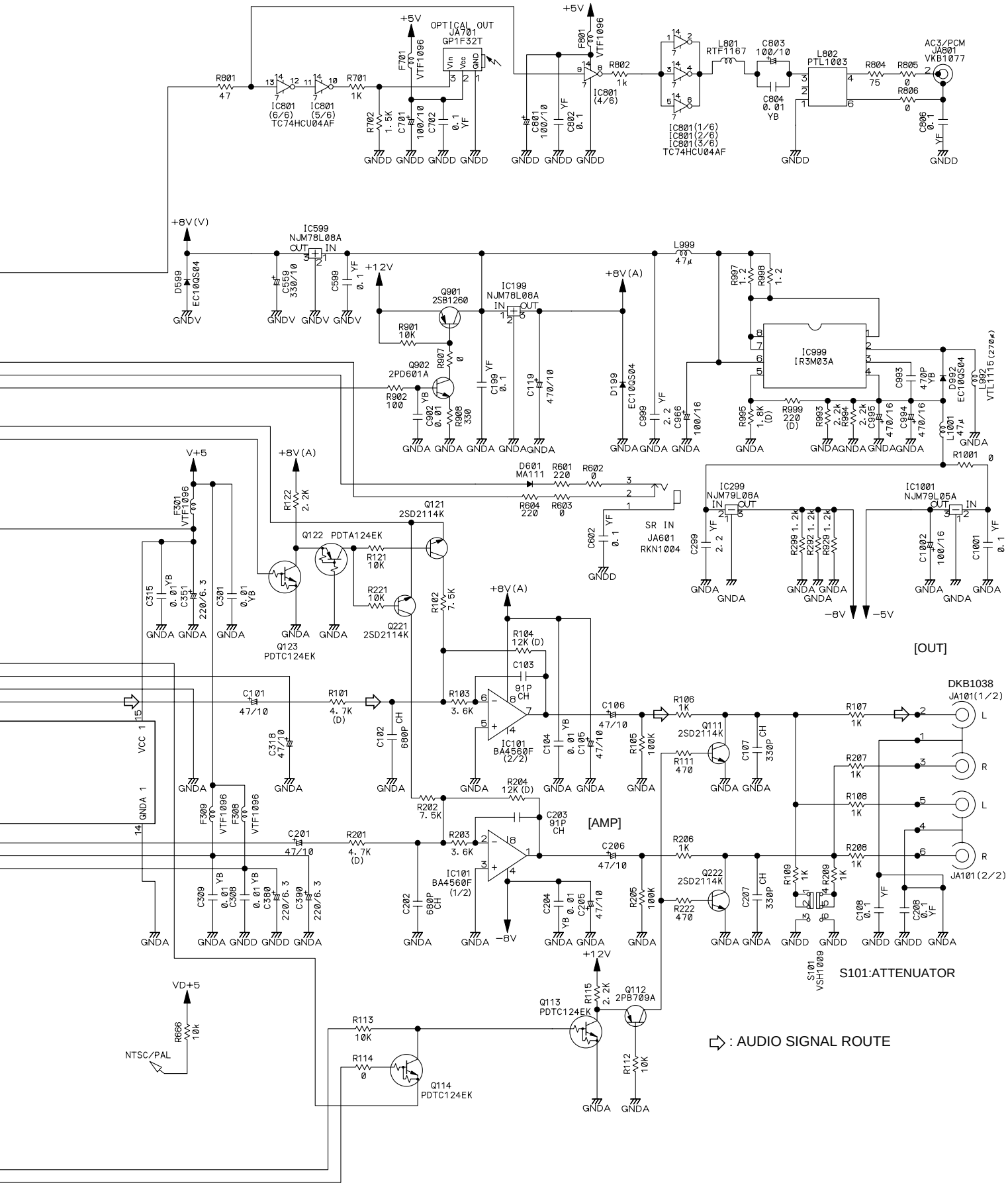


17 IC801-pin 36 (C_R output when selecting color difference output)
V: 500mV/div. H: 10µS/div.

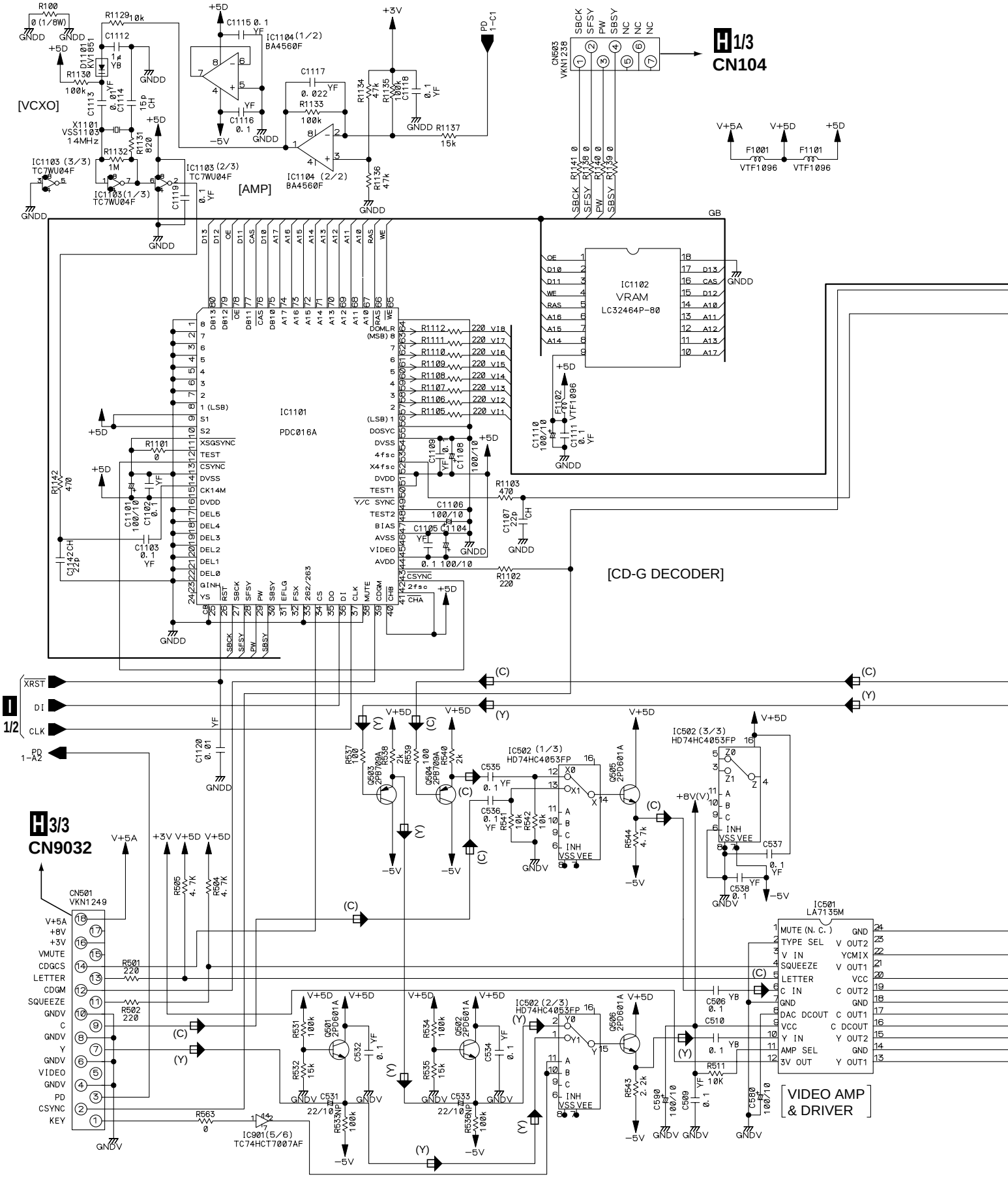


3.6 KGJB ASSY (1/2)



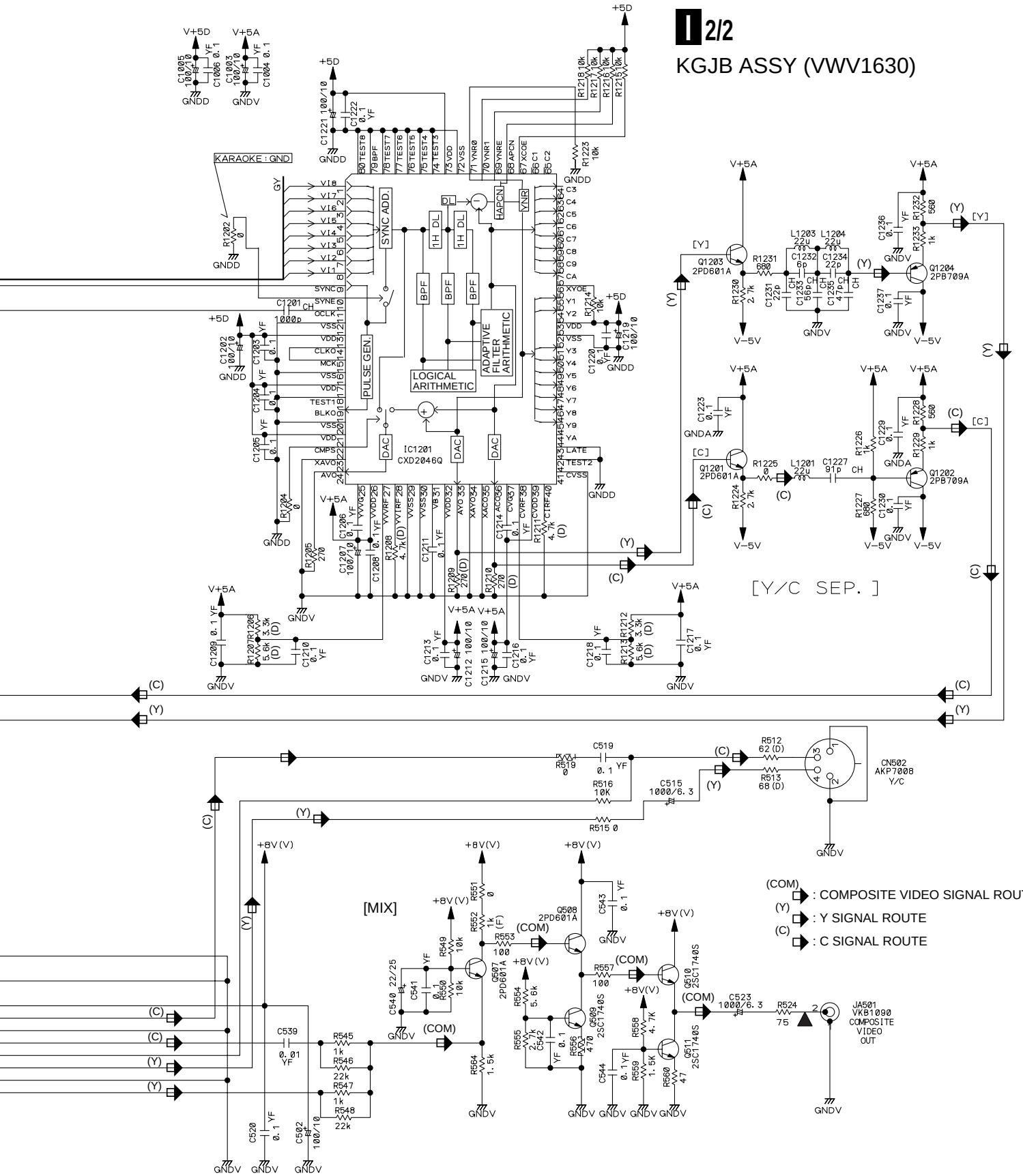

OPTICAL OUT
JA701
GP1F32T
IC801 (6/6) TC74HCU04AF
IC801 (5/6)
IC801 (4/6)
IC801(1/6)
IC801(2/6)
IC801(3/6)
TC74HCU04AF
L801 RTF1167
L802 PTL1003
AC3/PCM
JA801
VKB1077
IC599 NJM78L08A
IC199 NJM78L08A
IC999 IR3M03A
IC299 NJM79L08A
IC1001 NJM79L05A
SR IN
JA601
RKN1004
Q901 2SB1260
Q902 2PD601A
Q121 2SD2114K
Q122 PDTA124EK
Q123 PDTC124EK
Q221 2SD2114K
Q111 2SD2114K
Q222 2SD2114K
Q113 PDTC124EK
Q112 2PB709A
Q114 PDTC124EK
IC101 BA4560F (2/2)
IC101 BA4560F (1/2)
+8V(V)
+8V(A)
+12V
+5V
V+5
VD+5
-8V
-5V
GNDA
GNDV
GNDD
[OUT]
[AMP]
DKB1038
JA101(1/2)
JA101(2/2)
S101:ATTENUATOR
S101 VSH1009
NTSC/PAL
: AUDIO SIGNAL ROUTE

3.7 KGJB ASSY (2/2)

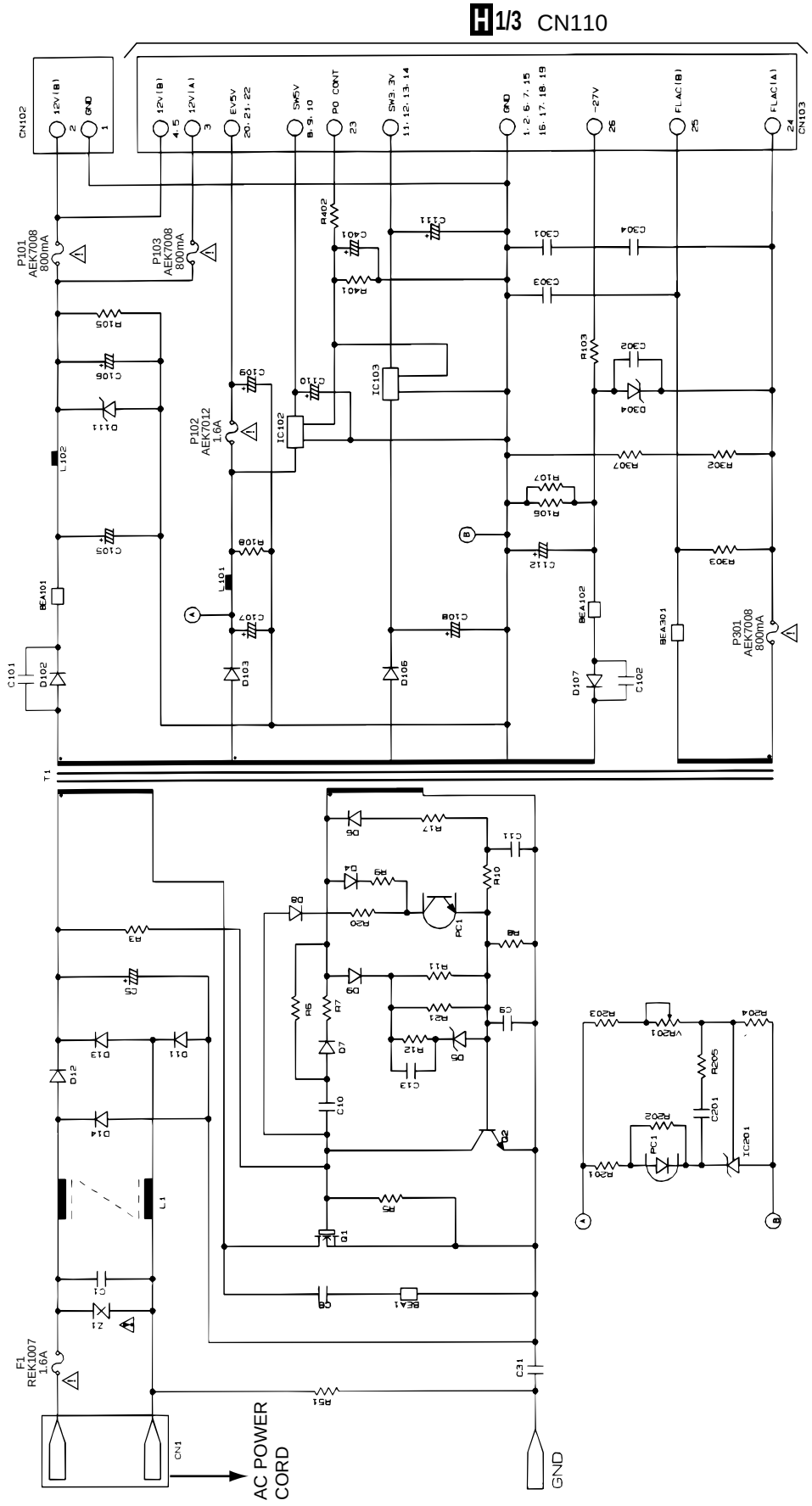


2/2

KGJB ASSY (VWV1630)



3.8 POWER SUPPLY ASSY



CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE NO. 491.800 MFD. BY LITTELFUSE INC. FOR P101, P103, P301 AND NO. 491 01.6 MFD. BY LITTELFUSE INC. FOR P102.

• NOTE FOR FUSE REPLACEMENT

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS ONLY.

《 NOTE OF SPARE PARTS IN POWER SUPPLY (SYPS) ASSY 》

- In case of repairing, use the described parts only to prevent an accident.
- Please write the red √ mark on the board when the primary section of POWER SUPPLY (SYPS) Assy is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.

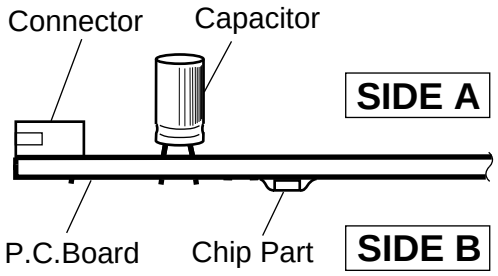
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

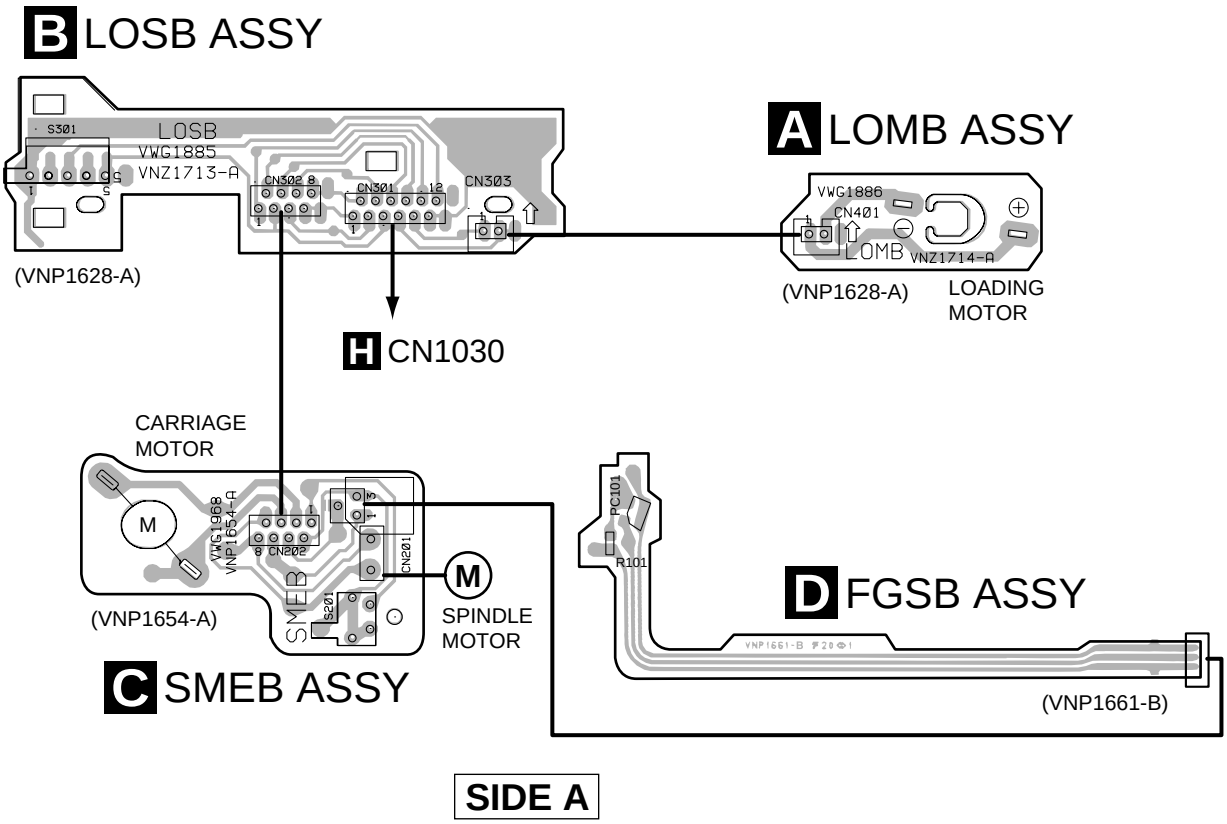
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
   For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.

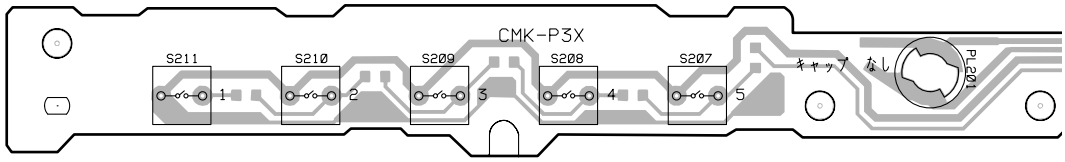


4.1 LOMB, LOSB, SMEB and FGSB ASSEMBLIES

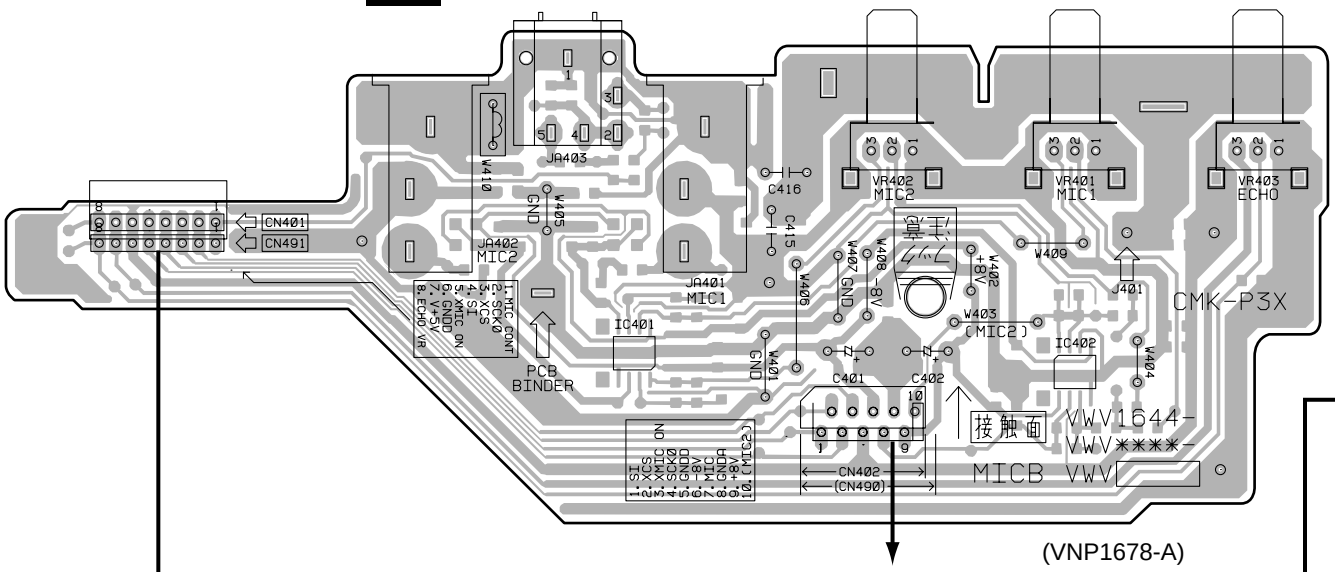


4.2 FLKY, PWSB, KYLB and MICB ASSEMBLIES

G KYLB ASSY

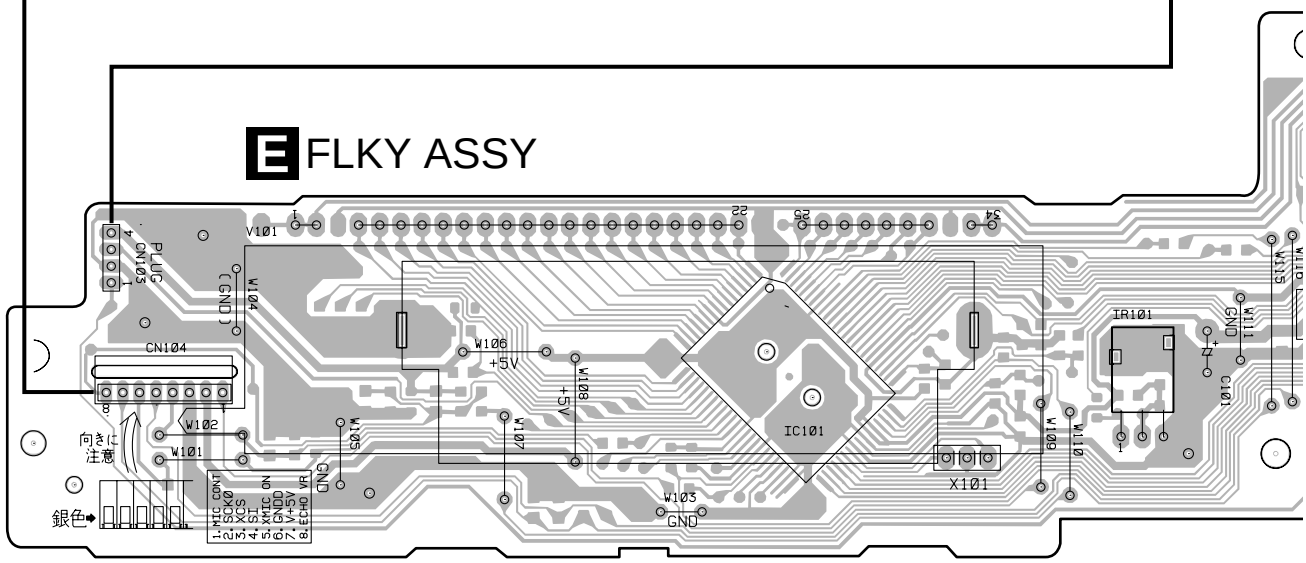


GA MICB ASSY



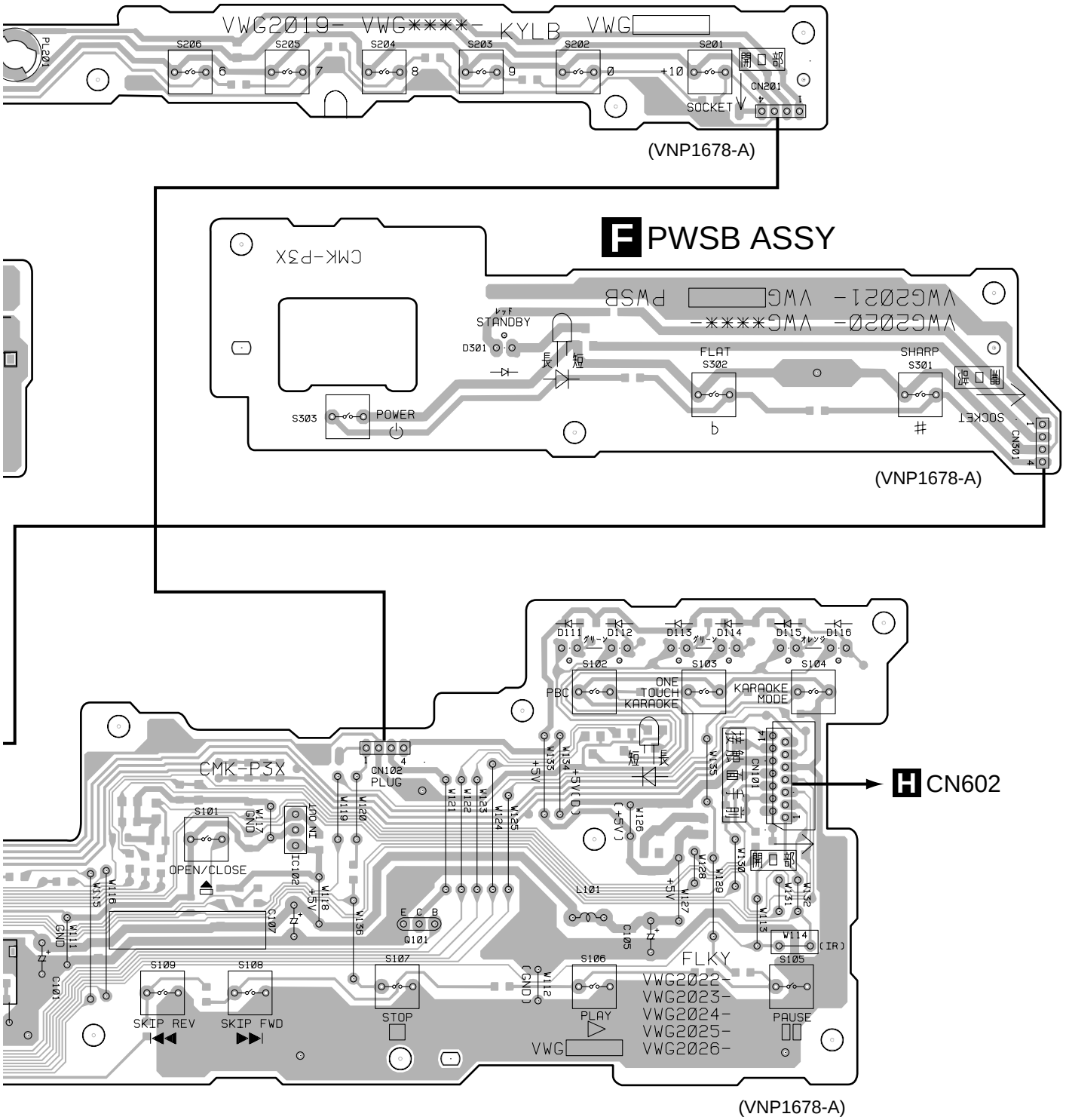
I CN401

E FLKY ASSY



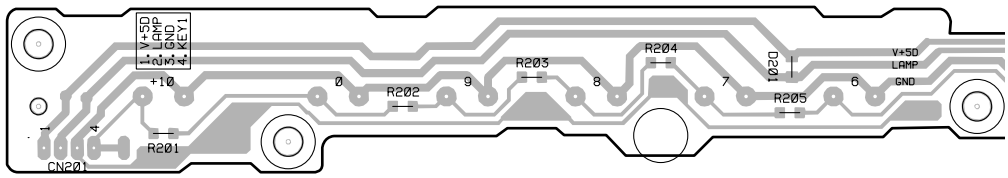
IC101

SIDE A

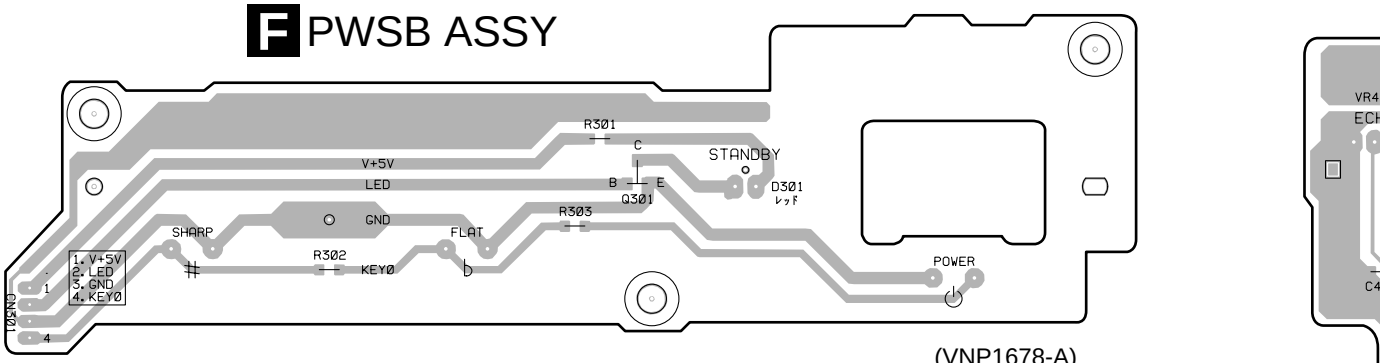

VWG2019- VWG****- KYLB VWG
S206
S205
S204
S203
S202
S201
CN201
SOCKET
(VNP1678-A)
F PWSB ASSY
CMK-P3X
PWSB VWG
VWG2021-
VWG2020-
VWG****-
STANDBY
D301
FLAT
S302
SHARP
S301
S303
POWER
CN301
(VNP1678-A)
H CN602
D111
D112
D113
D114
D115
D116
S102
S103
S104
PBC
ONE TOUCH KARAOKE
KARAOKE MODE
CN102 PLUG
CN101
S101
OPEN/CLOSE
IC102
Q101
L101
C105
C107
C101
S109
S108
S107
S106
S105
SKIP REV
SKIP FWD
STOP
PLAY
PAUSE
FLKY
VWG2022-
VWG2023-
VWG2024-
VWG2025-
VWG2026-
(IR)
(VNP1678-A)

IC102 Q101

G KYLB ASSY

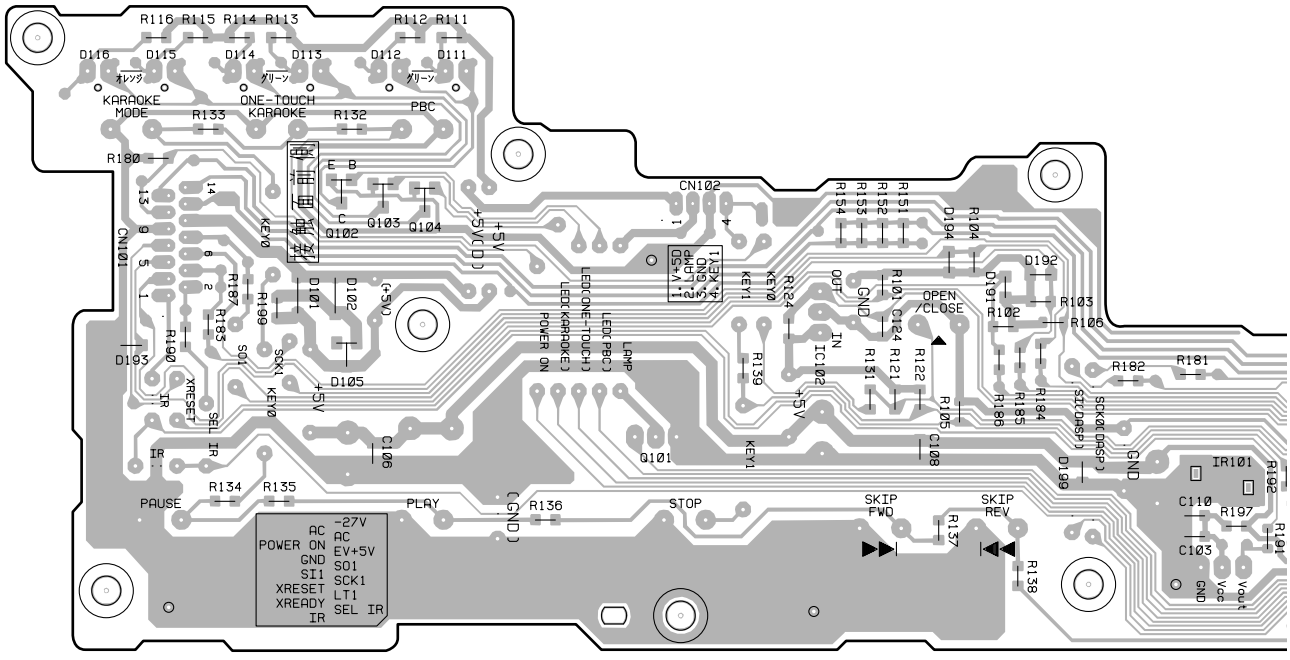


F PWSB ASSY



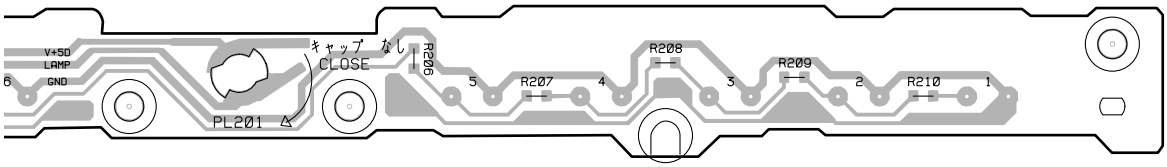
(VNP1678-A)

Q301



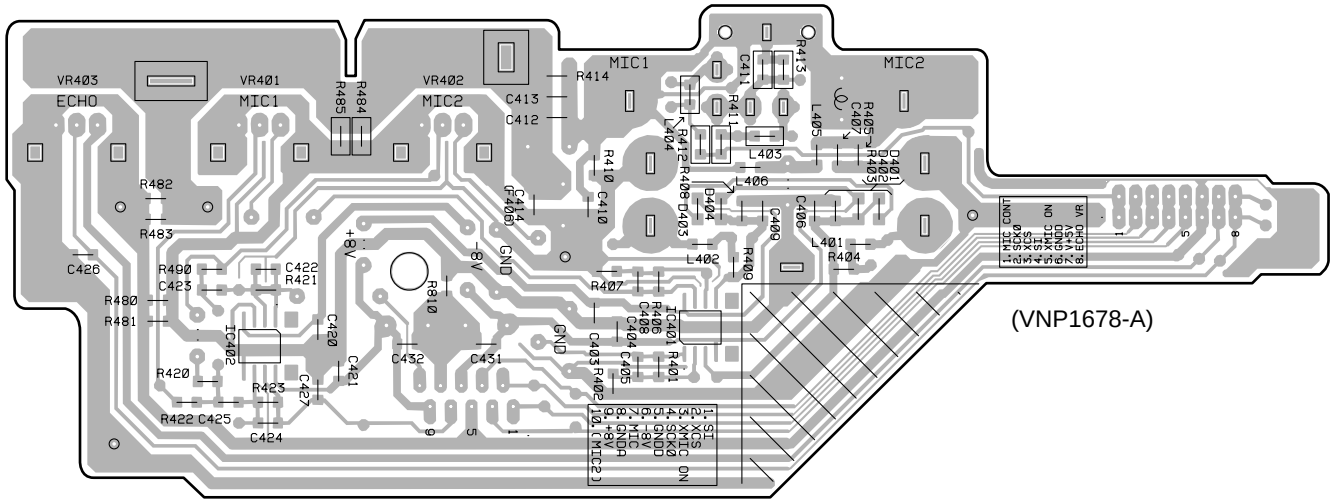
Q102 Q103 Q104

SIDE B



(VNP1678-A)

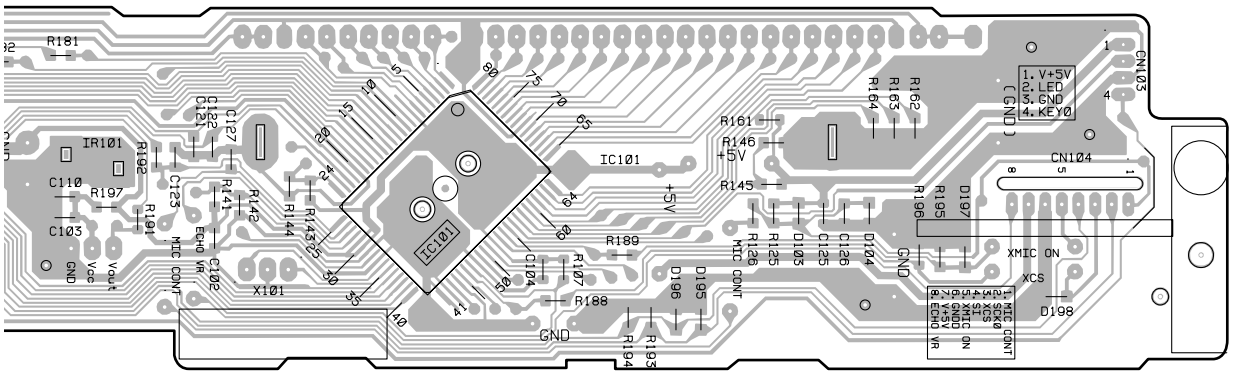
GA MICB ASSY



(VNP1678-A)

IC402 IC401

EFLKY ASSY

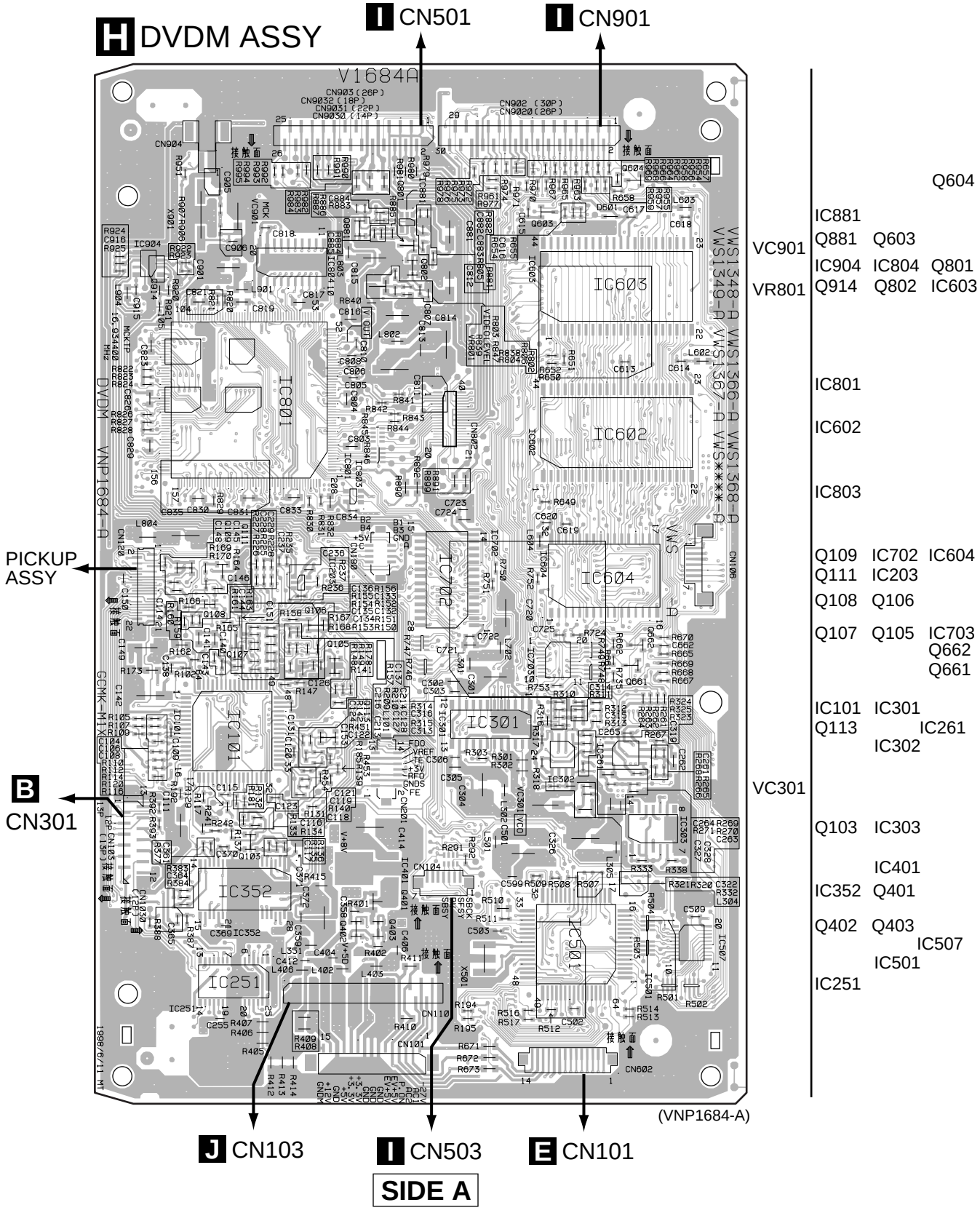


IC101

(VNP1678-A)

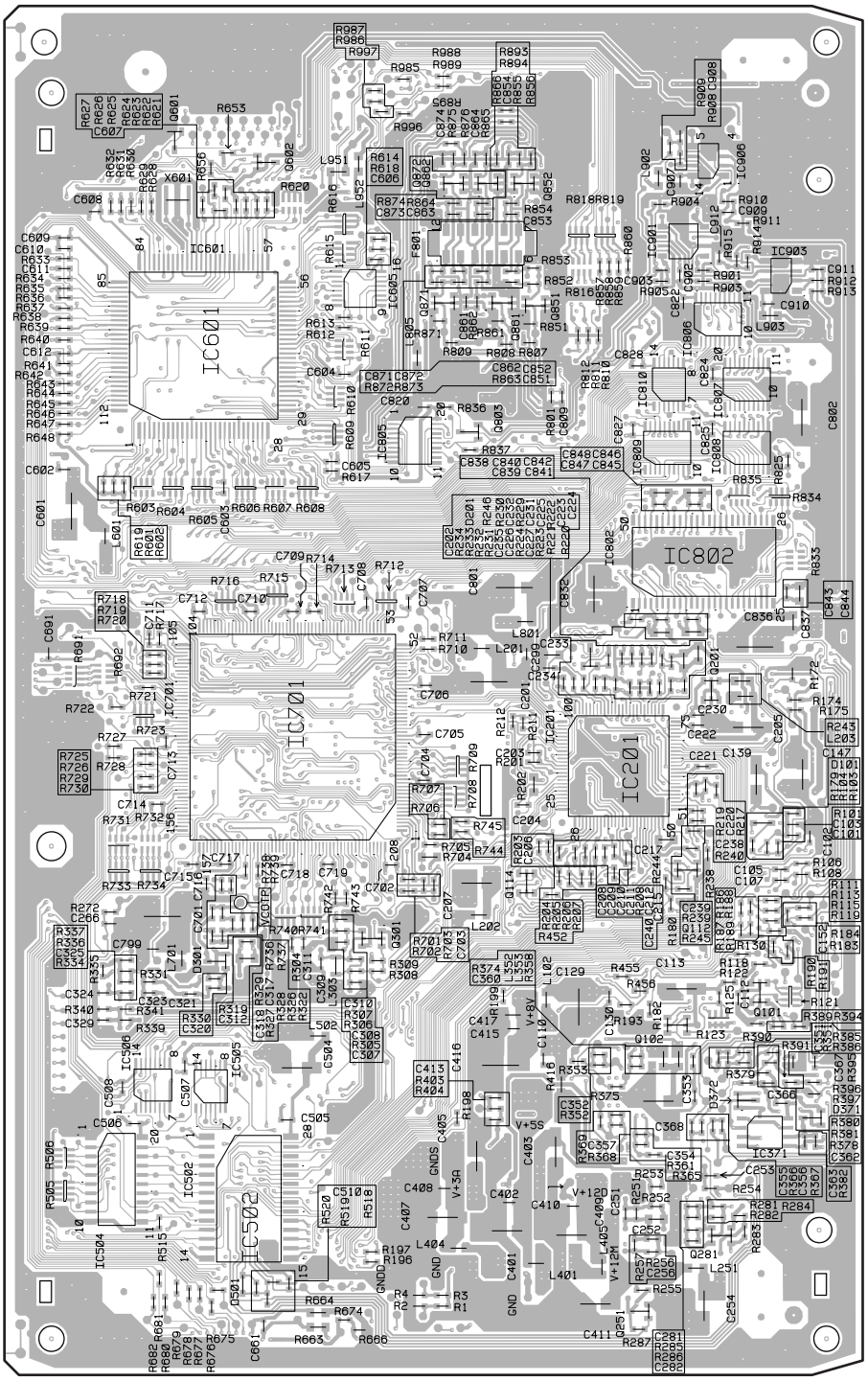
4.3 DVDM ASSY

• This PCB is a four-layered board. Middle layer is mainly connected to Vcc and GND.



• This PCB is a four-layered board. Middle layer is mainly connected to Vcc and GND.

H DVDM ASSY



(VNP1684-A)

Q601 Q602 IC906
Q872 Q862 Q852

IC901
IC903

IC605
Q871 Q861 Q851
IC601 IC806

IC810 IC807

IC805 Q803
IC809 IC808

IC802

Q201
IC701

IC201

Q112
Q114

Q301

Q101

Q102

IC506 IC505
IC371

IC504
IC502 Q281

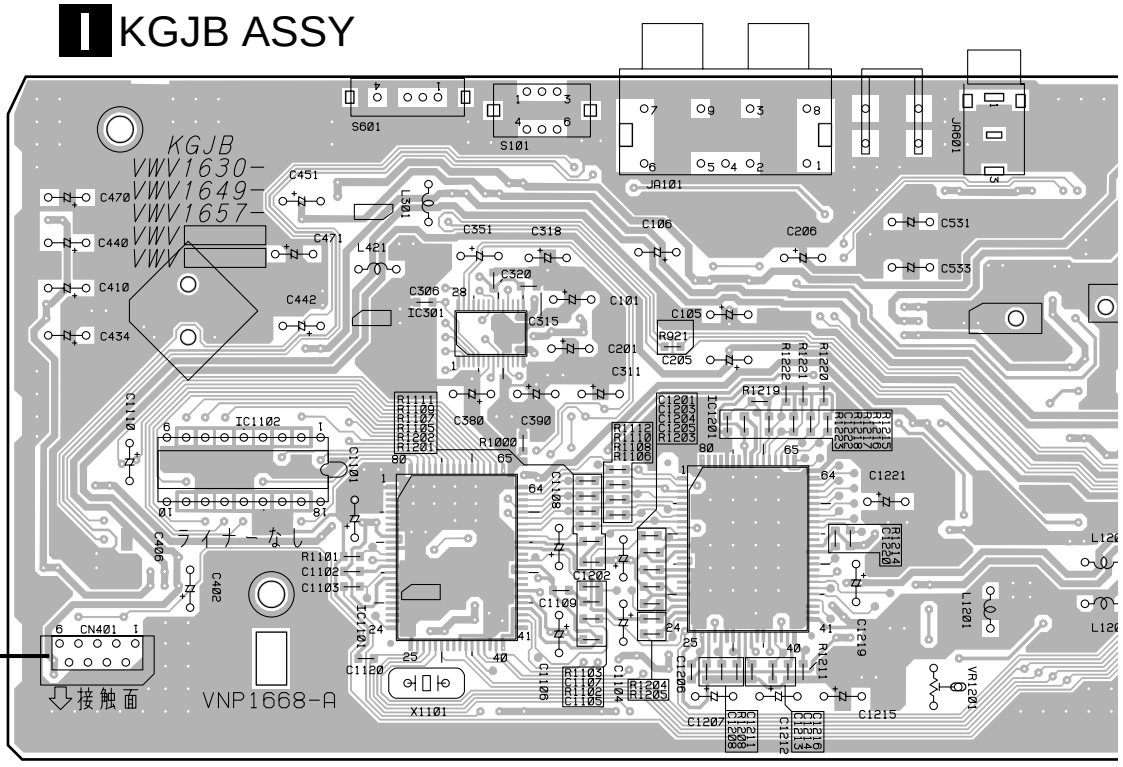
Q251

SIDE B

4.4 KGJB ASSY

KGJB ASSY

SIDE A

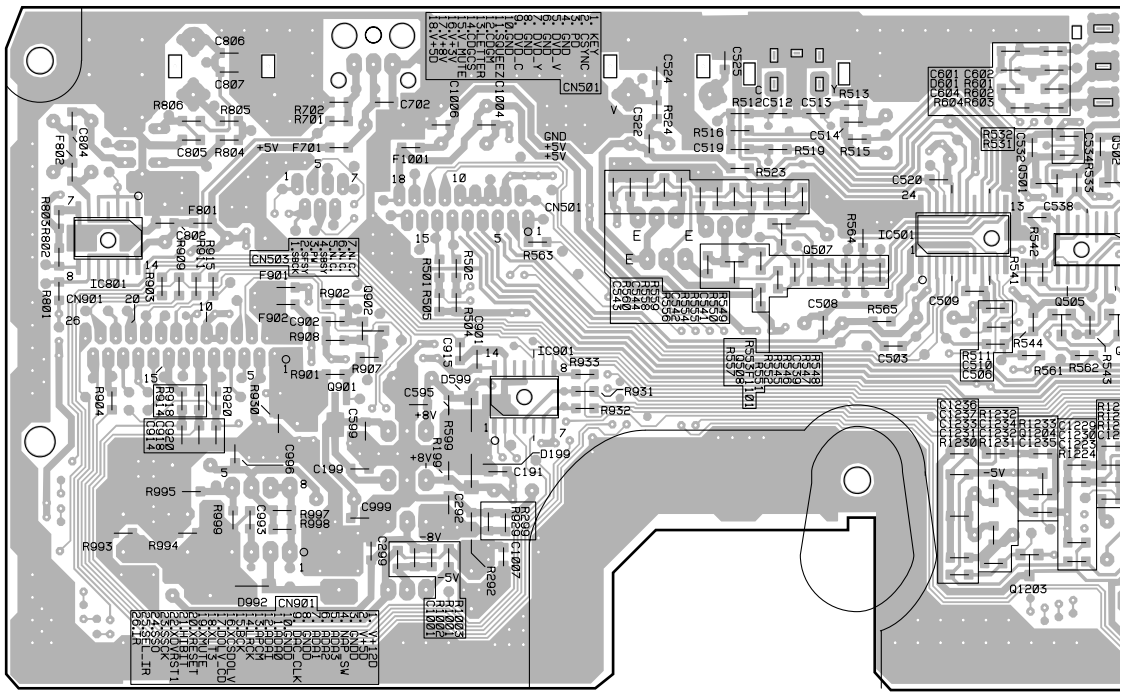


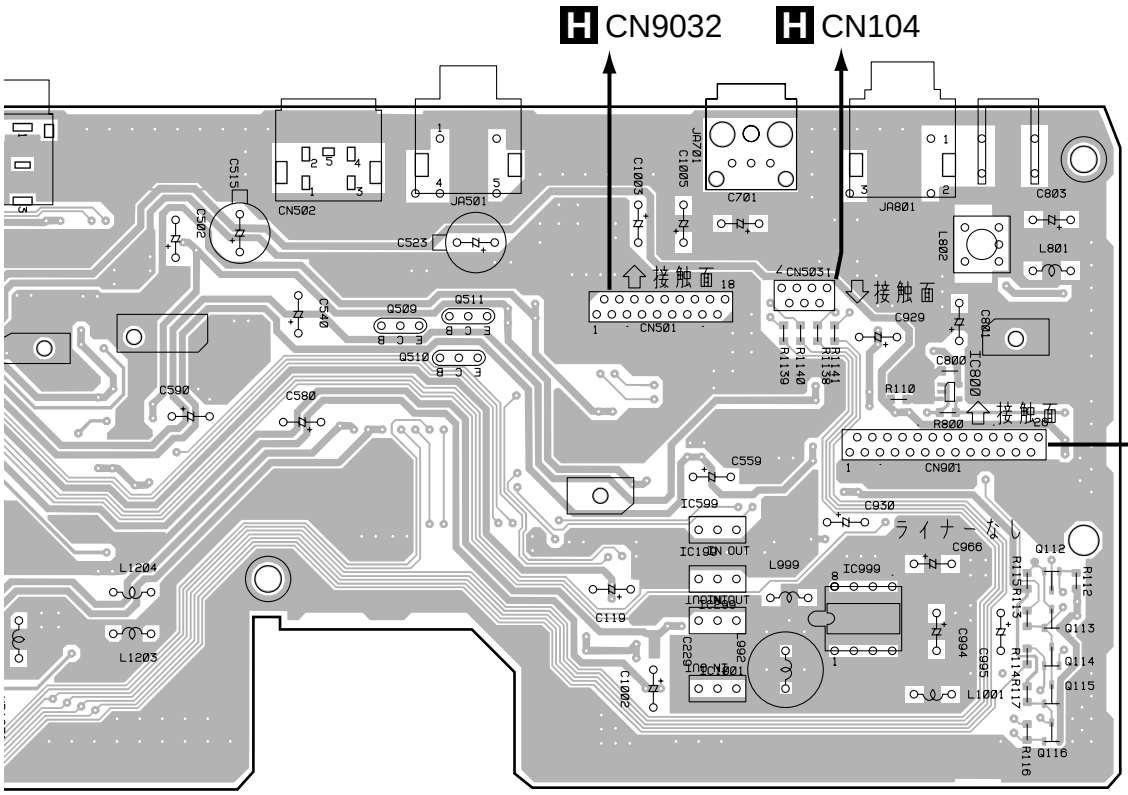
GA

CN402

KGJB ASSY

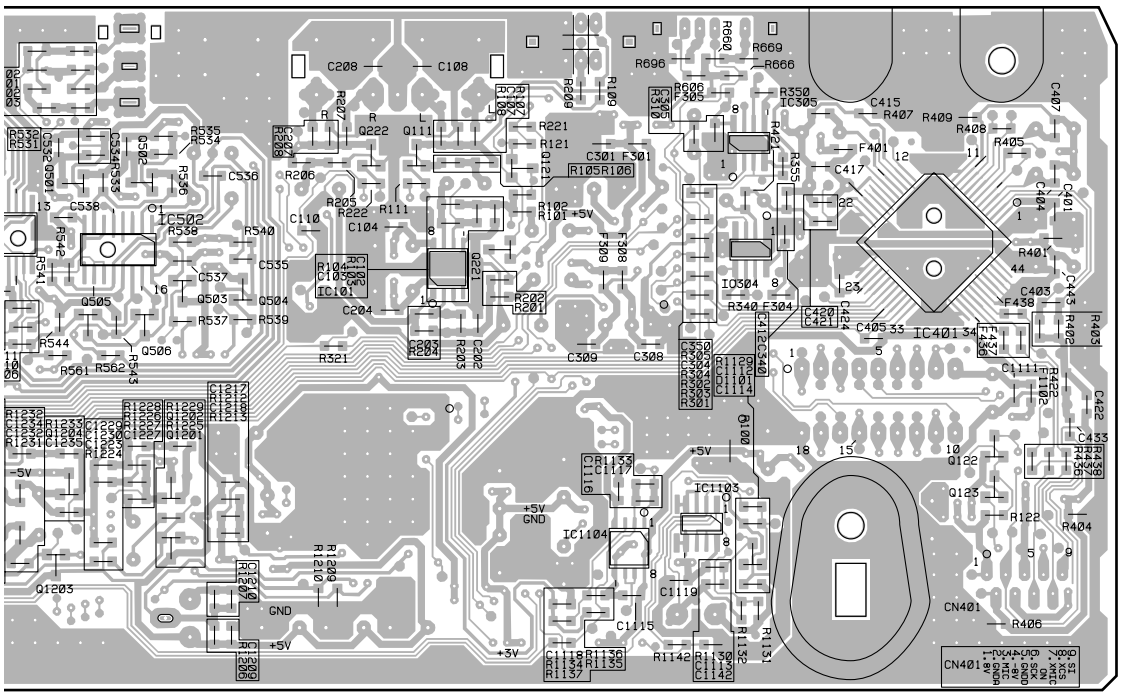
SIDE B





(VNP1668-A)

Q509 – Q511 IC599 IC199 IC999 IC800
IC299 IC1001 Q112 – Q116

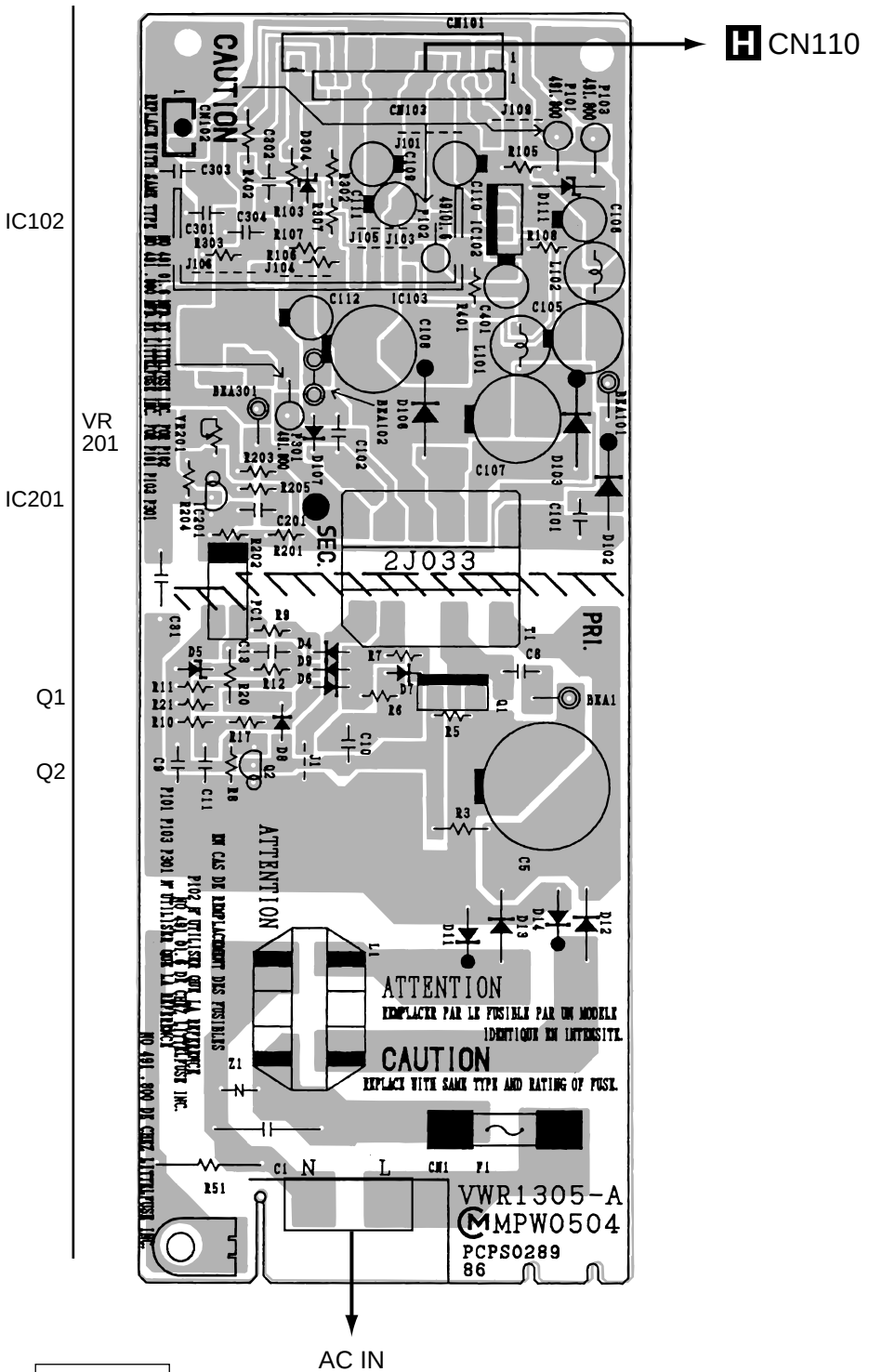


(VNP1668-A)

Q501 – Q506 Q222 Q111 Q121 IC1103 IC305 IC401 Q122
IC502 Q221 IC1104 IC304 Q123
Q1201 – Q1204

4.5 POWER SUPPLY ASSY

J POWER SUPPLY ASSY



SIDE A

5. PCB PARTS LIST

NOTES: ●*Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
●*The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
●*When ordering resistors, first convert resistance values into code form as shown in the following examples.*
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω	→	*56×10^1*	→	*561*	*RD1/4PU 5 6 1 J*
47k Ω	→	*47×10^3*	→	*473*	*RD1/4PU 4 7 3 J*
0.5 Ω	→	*R50*			*RN2H R 5 0 K*
1 Ω	→	*1R0*			*RS1P 1 R 0 K*

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω	→	*562×10^1*	→	*5621*	*RN1/4PC 5 6 2 1 F*

Mark	No.	Description	Part No.

LIST OF ASSEMBLIES

NSP		LOAB ASSY	VWM1798
NSP		├ LOSB ASSY	VWG1885
NSP		└ LOMB ASSY	VWG1886
NSP		SMEB ASSY	VWG1968
NSP		FGSB ASSY	VWG2009
NSP		FRPB ASSY	VWM1889
		├ KYLB ASSY	VWG2019
NSP		├ PWSB ASSY	VWG2020
		├ FLKY ASSY	VWG2022
		└ MICB ASSY	VWV1644
		DVDM ASSY	VWS1367
		KGJB ASSY	VWV1630
⚠		POWER SUPPLY ASSY	VWR1305

LOAB ASSY

OTHERS

		PC BOARD (LOAB)	VNP1628

A LOMB ASSY

OTHERS

	CN401	KR CONNECTOR	B2B-PH-K-S

B LOSB ASSY

SWITCH

	S301		VSK1011

OTHERS

	CN303	KR CONNECTOR	B2B-PH-K-S
	CN302	8P FFC CONNECTOR	VKN1268
	CN301	12P FFC CONNECTOR	VKN1272

C SMEB ASSY

SWITCH

	S201		DSG1016

OTHERS

	CN201	3P FFC CONNECTOR	52044-0345
	CN202	8P FFC CONNECTOR	VKN1212
		PC BOARD (SMEB)	VNP1654

D FGSB ASSY

SEMICONDUCTOR

	PC101		TLP910(O)

RESISTORS

	All Resistors		RS1/10S□□□J

FRPB ASSY

OTHERS

		PC BOARD (FRPB)	VNP1678

E FLKY ASSY

SEMICONDUCTORS

	IC101		PE5030A
	IC102		S-806D
	Q101		DTD113ES
	Q102-Q104		PDTC124EK
	D101		EP05Q04
	D115,D116		SLP6118C51H
	D111-D114		SLP7118C51H
	D103,D104		UDZS5.6B

SWITCHES

	S101-S109		RSG1030

CAPACITORS

	C101		CEJA101M10
	C121,C122,C124,C127		CKSQYB102K50
	C103,C125,C126		CKSQYF103Z50
	C102,C123		CKSQYF104Z50

RESISTORS

	All Resistors		RS1/10S□□□J

Mark	No.	Description	Part No.
OTHERS			
	CN102,CN103	FJ CONNECTOR4P	04P-FJ
	CN104	CONNECTOR	BTMK08S-1S
	IR101	REMOTE RECEIVER UNIT	GP1U28X
	V101	FL TUBE	VAW1046
	SPACER		VEC1599
	CN101		VKN1274
	FL HOLDER		VNF1087
	X101	CERAMIC RESONATOR (5MHz)	VSS1104

F PWSB ASSY

SEMICONDUCTORS			
	Q301		PDTC124EK
	D301		SLP9118C51H
SWITCHES			
	S301-S303		RSG1030
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN301	FJ CONNECTOR 4P	04R-FJ

G KYLB ASSY

SEMICONDUCTOR			
	D201		MA111
SWITCHES			
	S201-S211		RSG1030
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN201	FJ CONNECTOR 4P	04R-FJ
	PL201	LAMP (DVD ILLUM.)	VEL1022

GA MICB ASSY

SEMICONDUCTORS			
	IC402		BA4560F
	IC401		NJM2068M
FILTER			
	F405		VTF1096
CAPACITORS			
	C424		CCSQSL271J50
	C401,C402		CEAT101M10
	C425		CKSQYB104K25
	C405,C408		CKSQYB122K50
	C406,C409		CKSQYB152K50
	C403,C404,C420,C421,C426		CKSQYF103Z50
	C412,C413		CKSQYF104Z50
	C431,C432		CKSQYF225Z16

Mark	No.	Description	Part No.
RESISTORS			
	VR401-VR403	(10kΩ)	VCS1040
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN402	FFC CONNECTOR 9P	52045-0945
	CN401	CONNECTOR	BTMK08P-1R
	JA403	HEADPHONE JACK	RKN1006
	JA401,JA402	MIC JACK	VKN1147
	SNAP PLATE		VNE1102
	JACK HOLDER		VNE2150

H DVDM ASSY

SEMICONDUCTORS			
	IC301		ADC1175CIJMX
	IC371		BA10393F
⚠	IC401		BA178M08FP
	IC352		BA5982FP
	IC251		BA6195FP
	IC901		CY2081SL-638
	IC702		HM514800CJ-7
	IC101		LA9701M
	IC201		LC78651W
	IC802		MB811171622A-100FN
	IC801		MB86371C
	IC261,IC302		NJM2100M
	IC601		PD3381A
	IC701		PD4833A
	IC501		PE5012A
	IC502		SRM2B256SLMX70
	IC881		TA75S01F
	IC604		TC551001BFL-85
	IC504		TC74HC573AF
	IC303		TC74HCU04AF
	IC807,IC808		TC74LCX245FT
	IC810		TC74VHC00FT
	IC506,IC605		TC74VHC139FT
	IC505		TC74VHC20FT
	IC805,IC806,IC809		TC74VHC541FT
	IC507		TC74VHCT245AFT
	IC703		TC74VHCT541AFT
	IC903,IC904,IC906		TC7WU04F
	IC603		VYW1608
⚠	Q401		2SB1260
	Q603		DTA114EK
	Q107,Q602		DTC114EK
	Q601,Q661,Q662,Q803		DTC114TK
	Q108		HN1K03FU
	Q102,Q106,Q109,Q851,Q852		IMT1A
	Q861,Q862,Q871,Q872		IMT1A
	Q101,Q105,Q112-Q114,Q201		IMX1
	Q402,Q881		IMX1
	Q103,Q281,Q301		IMZ1A
	D301		KV1410
	D371,D372		MA152WK
	D601		RB501V-40

Mark	No.	Description	Part No.
COILS AND FILTERS			
	F6630,F6640,F6710	CHIP BEAD	DTF1067
	F4010,F4020,F4030,F4040,F4050	CHIP BEAD	DTF1070
	F4060,F8010	CHIP BEAD	DTF1070
	F801	VIDEO FILTER	VTF1098
	L304	CHIP COIL(1.5mH)	VTL1059
	L101,L303	CHIP COIL(10mH)	VTL1061
	L804	CHIP COIL	VTL1067
	L6740,L6750,L6760,L6770,L6780	CHIP BEAD	VTL1075
	L6790,L6800,L6810,L6820,L9050	CHIP BEAD	VTL1075
	L9560,L9570,L9580,L9620,L9630	CHIP BEAD	VTL1075
	L9640,L9870,L9880,L9890	CHIP BEAD	VTL1075
CAPACITORS			
	C605		CCSRCH100D50
	C123,C282,C610,C611,C716		CCSRCH101J50
	C903		CCSRCH101J50
	C206,C210,C211,C240		CCSRCH151J50
	C126,C307,C905		CCSRCH180J50
	C116		CCSRCH220J50
	C152,C208		CCSRCH221J50
	C135		CCSRCH270J50
	C322		CCSRCH330J50
	C352,C360		CCSRCH331J50
	C104-C108,C124,C209,C314		CCSRCH470J50
	C324		CCSRCH470J50
	C117,C122		CCSRCH471J50
	C128,C309		CCSRCH560J50
	C127,C308		CCSRCH5R0C50
	C134		CCSRCH680J50
	C145,C146		CCSRCH820J50
	C129,C142,C414,C832		CEV101M10
	C113,C139,C254,C358,C409		CEV220M16
	C411		CEV220M16
	C801,C802,C811,C814,C836		CEV221M4
	C111,C147,C149,C205,C207		CEV470M6R3
	C301,C304,C368,C401,C403		CEV470M6R3
	C405,C407,C807,C812,C815		CEV470M6R3
	C881		CEV470M6R3
	C140,C223,C224,C252,C264		CKSQYB105K10
	C312,C803,C804,C813,C817		CKSQYB105K10
	C819,C821,C823,C826		CKSQYB105K10
	C829-C831,C833		CKSQYB105K10
	C217,C302,C305,C417		CKSQYF105Z16
	C216,C313,C323		CKSRYB102K50
	C133,C136,C203,C220,C225		CKSRYB103K50
	C253,C255,C266,C320,C321		CKSRYB103K50
	C616,C662,C703,C711		CKSRYB103K50
	C101,C102,C114,C118,C121		CKSRYB104K16
	C130,C138,C153,C204		CKSRYB104K16
	C212,C213,C227,C228		CKSRYB104K16
	C231,C232,C263,C311		CKSRYB104K16
	C315-C317,C362-C365,C413		CKSRYB104K16
	C805,C806,C808,C810		CKSRYB104K16
	C281		CKSRYB222K50
	C137,C354,C357		CKSRYB223K25
	C237,C239,C251,C261		CKSRYB472K50

Mark	No.	Description	Part No.
	C109,C110,C120,C131,C143		CKSRYF104Z16
	C148,C150,C202,C215		CKSRYF104Z16
	C221,C222,C226,C230,C235		CKSRYF104Z16
	C265,C303,C306,C319,C359		CKSRYF104Z16
	C366,C367,C369-C372,C402		CKSRYF104Z16
	C404,C406,C408,C410,C412		CKSRYF104Z16
	C415,C502,C503,C506-C509		CKSRYF104Z16
	C603,C604,C606-C609,C612		CKSRYF104Z16
	C615,C617-C620,C661,C691		CKSRYF104Z16
	C702,C704-C710,C712-C715		CKSRYF104Z16
	C717-C719,C725,C818,C820		CKSRYF104Z16
	C822,C824,C825,C827,C828		CKSRYF104Z16
	C834,C838,C840,C842,C843		CKSRYF104Z16
	C845,C847,C851,C854,C861		CKSRYF104Z16
	C864,C871,C874,C882,C883		CKSRYF104Z16
	C907,C910,C915		CKSRYF104Z16
	C816,C837,C844,C848	(2.2μF/6.3V)	VCG1030
	C299,C328,C505,C599,C602		VCG1032
	C722,C723,C799,C902		VCG1032
	VC301	(40pF)	VCM1010
	VC901	(30pF)	VCM1011
RESISTORS			
	R123	(39Ω)	ACN7047
	R607-R611,R723	(47Ω)	DCN1090
	R505,R506,R615,R616,R620	(10kΩ)	DCN1094
	R692,R708,R709,R733,R734	(10kΩ)	DCN1094
	R740,R741,R748,R749	(10kΩ)	DCN1094
	R121,R291,R501-R504	(22Ω)	DCN1104
	R603-R606,R691,R712,R713	(22Ω)	DCN1104
	R715,R716,R731,R732,R746	(22Ω)	DCN1104
	R816,R818,R819,R833-R835	(22Ω)	DCN1104
	R1020,R162,R173,R2010,R2020		RS1/10S0R0J
	R243,R2510,R301,R3010,R302		RS1/10S0R0J
	R3020,R3050,R3510,R3520		RS1/10S0R0J
	R405-R407,R5010,R5020,R6010		RS1/10S0R0J
	R6030,R6040,R672,R673,R7010		RS1/10S0R0J
	R7020,R8020,R8030,R839,R9010		RS1/10S0R0J
	R9020,R9030,R9040,R9510,R9520		RS1/10S0R0J
	R982		RS1/10S0R0J
	R202		RS1/10S101J
	R886		RS1/16S1001F
	R306,R334,R807-R809		RS1/16S1500F
	R829,R884,R885		RS1/16S2000F
	R804,R840		RS1/16S2201F
	R801,R803,R838		RS1/16S2701F
	R164,R853,R863,R873		RS1/16S5600F
	Other Resistors		RS1/16S□□□J
OTHERS			
	FLEXIBLE CABLE (07P)		VDA1681
	CN106	7P FFC CONNECTOR	VKN1299
	CN201	B TO B CONNECTOR14P	VKN1324
	CN104	7P FFC CONNECTOR	VKN1411
	CN602	14P FFC CONNECTOR	VKN1418
	CN120	24P FFC CONNECTOR	VKN1464
	CN1030	12P FFC CONNECTOR	VKN1471
	CN9032	18P FFC CONNECTOR	VKN1476
	CN110,CN9020	26P FFC CONNECTOR	VKN1479
	CN180	B TO B CONNECTOR 08P	VKN1485
	LABEL		VRW1750

Mark	No.	Description	Part No.
	X601	CHIP CERAMIC RESONATOR (20MHz)	VSS1114
	X501	CHIP CERAMIC RESONATOR (10MHz)	VSS1115
	X901	CRYSTAL (13.824MHz)	VSS1129

KGJB ASSY

SEMICONDUCTORS

	IC101,IC1104	BA4560F
	IC1201	CXD2046Q
	IC502	HD74HC4053FP
	IC999	IR3M03A
	IC501	LA7135M
	IC1102	LC32464P-80
	IC199,IC599	NJM78L08A
	IC1001	NJM79L05A
	IC299	NJM79L08A
	IC1101	PDC016A
	IC301	PE8001A
	IC901	TC74HCT7007AF
	IC801	TC74HCU04AF
	IC800	TC7SET08F
	IC1103,IC304	TC7WU04F
	IC401	TC9409BF-001
	Q112,Q1202,Q1204,Q503,Q504	2PB709A
	Q1201,Q1203,Q501,Q502	2PD601A
	Q505-Q508,Q902	2PD601A
	Q901	2SB1260
	Q509-Q511	2SC1740S
	Q111,Q121,Q221,Q222	2SD2114K
	Q122	PDTA124EK
	Q113,Q114,Q123	PDTC124EK
	D199,D599,D992	EC10QS04
	D1101	KV1851
	D601	MA111

COILS AND FILTERS

	L1201,L1203,L1204	LAU220J
	L1001,L999	LFA470J
	L802 PULSE TRANS.	PTL1003
	L436-L438,L920,L931-L933	QTL1015
	L801 NOISE FILTER	RTF1167
	F1001,F1101,F1102,F301,F304	VTF1096
	F308,F309,F401,F701,F801	VTF1096
	F901,F902	VTF1096
	L992	VTL1115

SWITCH

	S101	VSH1009

CAPACITORS

	C1201	CCSQCH102J50
	C1114	CCSQCH150J50
	C1107,C1142,C1231,C1234	CCSQCH220J50
	C412	CCSQCH220J50
	C107,C207	CCSQCH331J50
	C1235	CCSQCH470J50
	C1233	CCSQCH560J50
	C102,C202	CCSQCH681J50
	C1232	CCSQCH6R0D50
	C103,C1227,C203	CCSQCH910J50
	C531,C533	CEANP220M10
	C1003,C1005,C1101,C1104,C1106	CEAT101M10
	C1108,C1110,C1202,C1207,C1212	CEAT101M10
	C1215,C1219,C1221,C410,C440	CEAT101M10
	C451,C470,C471,C502,C580	CEAT101M10
	C590,C701,C801,C803,C929	CEAT101M10
	C1002,C930,C966	CEAT101M16
	C515,C523	CEAT102M6R3
	C540	CEAT220M25
	C402,C434,C442	CEAT221M10
	C351,C380,C390	CEAT221M6R3
	C559	CEAT331M10
	C101,C105,C106,C201	CEAT470M10
	C205,C206,C311,C318	CEAT470M10
	C119	CEAT471M10
	C994,C995	CEAT471M16
	C104,C204,C301,C308,C309	CKSQYB103K50
	C315,C320,C340,C404,C407	CKSQYB103K50
	C421,C804,C902	CKSQYB103K50
	C405,C433,C506,C510	CKSQYB104K25
	C1112	CKSQYB105K10
	C403	CKSQYB122K50
	C993	CKSQYB471K50
	C422	CKSQYB562K50
	C1113,C1120,C539	CKSQYF103Z50
	C1001,C1004,C1006,C108	CKSQYF104Z25
	C1102,C1103,C1105,C1109,C1111	CKSQYF104Z25
	C1115,C1116,C1118,C1119	CKSQYF104Z25
	C1203-C1206,C1208-C1211	CKSQYF104Z25
	C1213,C1214,C1216-C1218,C1220	CKSQYF104Z25
	C1222,C1223,C1229,C1230	CKSQYF104Z25
	C1236,C1237,C199,C208,C401	CKSQYF104Z25
	C415,C417,C420,C424,C443	CKSQYF104Z25
	C509,C519,C520,C532	CKSQYF104Z25
	C534-C538,C541-C544,C599	CKSQYF104Z25
	C602,C702,C800,C802,C806	CKSQYF104Z25
	C901	CKSQYF104Z25
	C1117	CKSQYF223Z50
	C299,C999	CKSQYF225Z16

RESISTORS

	R512	RN1/10SC62R0D
	R513,R524	RN1/10SC68R0D
	R104,R204	RN1/10SE1202D
	R995	RN1/10SE1801D
	R999	RN1/10SE2200D
	R1209,R1210	RN1/10SE2700D
	R1206,R1212	RN1/10SE3301D
	R101,R1208,R1211,R201	RN1/10SE4701D
	R1207,R1213	RN1/10SE5601D
	R552	RS1/10S1001F
	R100	RS1/8S0R0J
	Other Resistors	RS1/10S□□□J

OTHERS

	CN401	9P FFC CONNECTOR	52045-0945
	CN502	4P MINI DIN SOCKET	AKP7008
	JA101	4P PIN JACK	DKB1038
	JA701	OPTICAL MODULE	GP1F32T
	JA601	REMOTE CONTROL JACK	RKN1004

Mark	No.	Description	Part No.
	JA801	1P PIN JACK(NI,BLK)	VKB1077
	JA501	1P PIN JACK	VKB1090
	CN503	7P FFC CONNECTOR	VKN1238
	CN501	18P FFC CONNECTOR	VKN1249
	CN901	26P FFC CONNECTOR	VKN1257
		SCREW TERMINAL	VNE1948
		PC BOARD (KGJB)	VNP1668
	X1101	CRYSTAL (14MHz)	VSS1103

J POWER SUPPLY ASSY

OTHERS

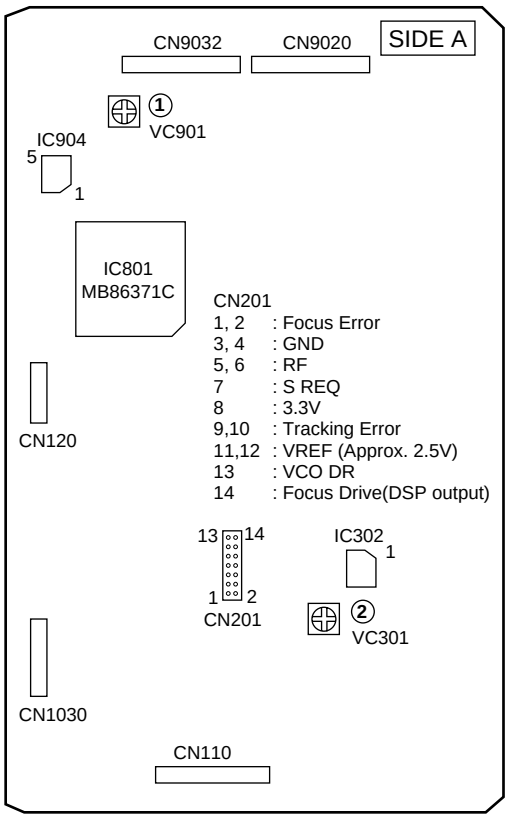
⚠	F1	FUSE (1.6A)	REK1077
⚠	P101,P103,P301	PROTECTOR (800mA)	AEK7008
⚠	P102	PROTECTOR (1.6A)	AEK7012

6. ADJUSTMENT

6.1 ADJUSTMENT ITEMS AND LOCATION

■ Adjustment Points (PCB Part)

DVDM ASSY



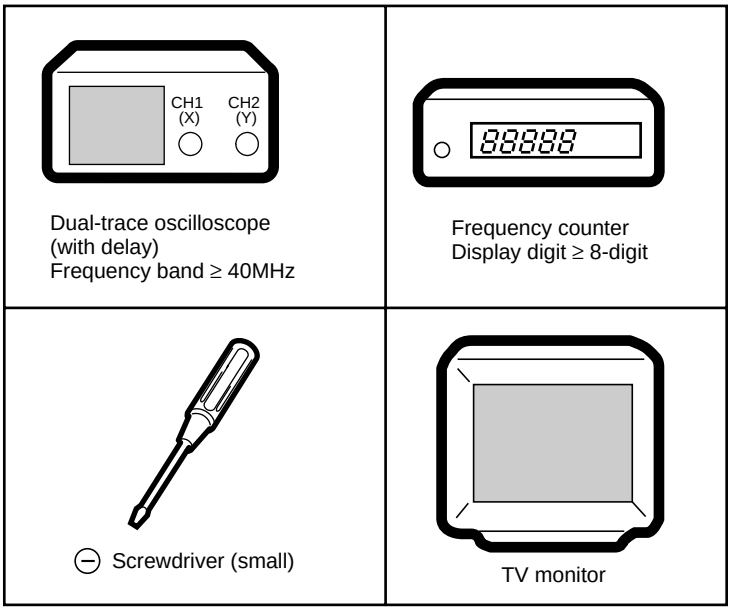
■ Adjustment Items

[Electrical Part]

① 16MHz Master Clock Adjustment

② VCO Offset Adjustment

6.2 JIGS AND MEASURING INSTRUMENTS



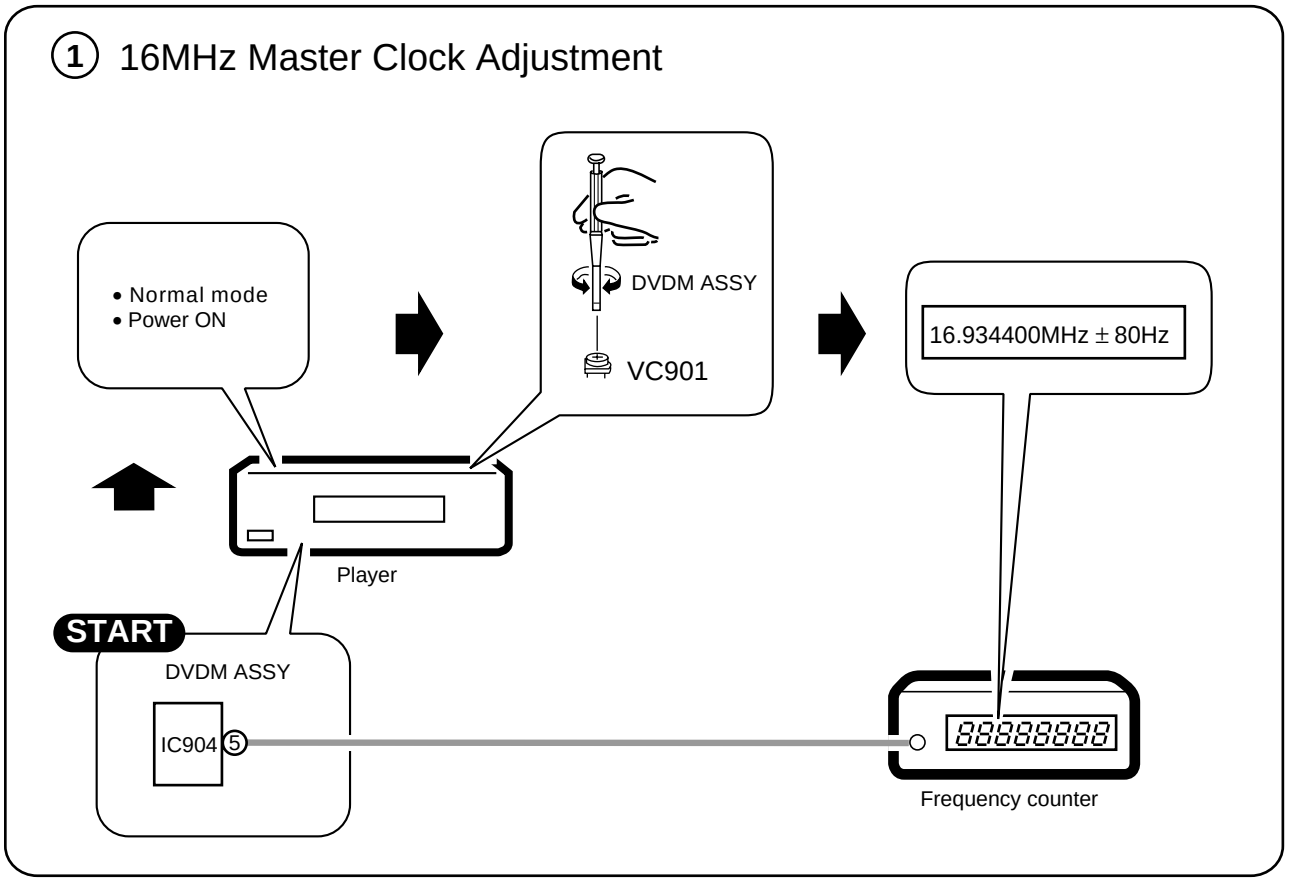
6.3 NECESSARY ADJUSTMENT POINTS

When	Adjustment Points
■ EXCHANGE PCB ASSY	
Exchange board KGJB ASSY	Mechanical point —————— Electric point ——————
Exchange board DVDM ASSY	Mechanical point —————— Electric point ——————

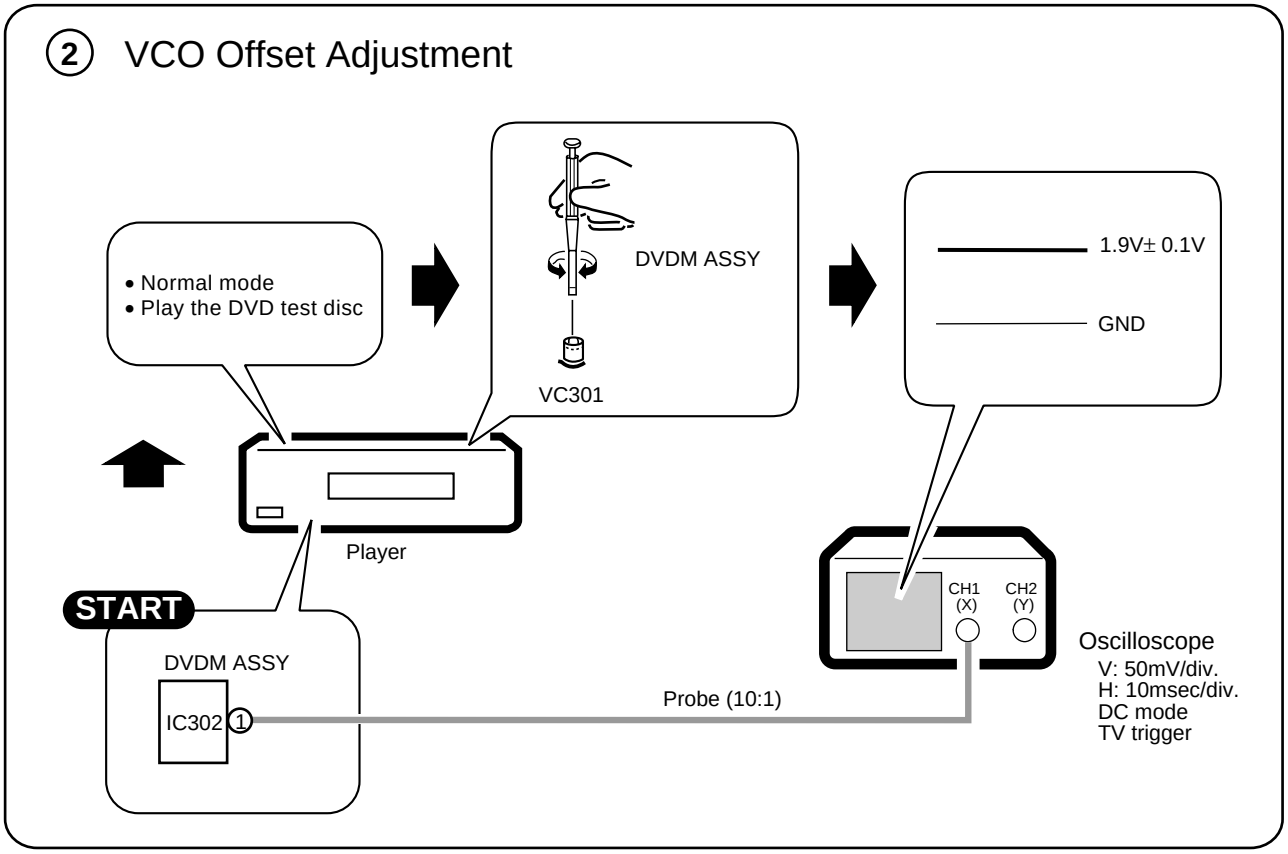
Note : ① and ② are adjusted already.

6.4 ELECTRICAL ADJUSTMENT

① 16MHz Master Clock Adjustment



② VCO Offset Adjustment



7. GENERAL INFORMATION

7.1 PARTS

7.1.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● List of IC

PE5030A, PE5012A, PD3381A

• For LA9701M (DVDM ASSY: IC101) and LC78651W (DVDM ASSY: IC201), refer to the service guide RRV2004.

■ PE5030A (FLKY ASSY : IC101)

• FL Control IC

● Pin Function

No.	Mark	Pin Name	I/O	Function	No.	Mark	Pin Name	I/O	Function
1	P94	G7	O	FL timing output H: ON	41	P32	P32	I	Not used
2	P93	G6			42	P31	P31	I	Not used
3	P92	G5			43	P30	(NC)	O	Non connection
4	P91	G4			44	P03	P03	I	Not used
5	P90	G3			45	P02	(NC)	O	Non connection
6	P81	G2			46	P01	DSP CS	O	Chip select output to DSP
7	P80	G1			47	P00	SEL IR	I	Remote control signal input
8	VDD	VCC	–	Power supply pin	48	IC	IC	–	–
9	P27	SCK0	O	Communication clock output with DSP	49	P72	(NC)	O	Non connection
10	P26	SO0	O	Communication data output with DSP	50	P71	(NC)	O	Non connection
11	P25	(NC)	O	Non connection	51	P70	(NC)	O	Non connection
12	P24	LT	I	Communication handshake line with system controller H: Communication permission	52	VDD	VDD	–	Power supply pin
13	P23	XREADY	O	Communication handshake line with system controller L: Communication permission	53	P127	(NC)	O	Non connection
14	P22	SCK1	I/O	Communication clock output with system controller	54	P126	MIC ON	O	Mic ON/OFF switch
15	P21	SO1	I/O	Communication data output with system controller	55	P125	(NC)	O	Non connection
16	P20	SI1	I	Communication data input with system controller	56	P124	STBY LED	O	Standby LED output
17	RESET	RESET IN	I	Reset input L: Reset	57	P123	OEMSEL	I	Pioneer/OEM model switch L: PIONEER
18	P74	(NC)	O	Non connection	58	P122	P122	I	Non connection
19	P73	(NC)	O	Non connection	59	P121	P121	I	Non connection
20	AVSS	VSS	–	GND	60	P120	ON POWER	I	Switch the STBY/POWER ON at FL controller is rised up L: STBY
21	P17	KIN0	I	Key input	61	P117	P15	O	FL segment output H: ON
22	P16	KIN1			62	P116	P14		
23	P15	(NC)	O	Non connection	63	P115	P13		
24	P14	MS2	I	Destination discrimination input	64	P114	P12		
25	P13	RESET OUT	O	System reset output L: Reset	65	P113	P11		
26	P12	MIC CONT	I	Mic control input	66	P112	P10		
27	P11	ECHO VOL	I	Digital echo volume input	67	P111	P9		
28	P10	MS0	I	Destination discrimination input	68	P110	P8		
29	AVDD	AVDD	–	Power supply pin	69	P107	P7		
30	AVREF	AVREF	–	Reference power supply pin	70	P106	P6		
31	P04	P04	I	Not used	71	VLOAD	– 27V	–	Input for – 27V
32	XT2	(NC)	–	Non connection	72	P105	P5	O	FL segment output H: ON
33	VSS	VSS	–	GND	73	P104	P4		
34	X1	X1	I	Connect a microprocessor clock	74	P103	P3		
35	X2	X2	–		75	P102	P2		
36	P37	LAMP	O	DVD lamp ON/OFF H: ON	76	P101	P1		
37	P36	PBC LED	O	Playback control LED output H: ON	77	P100	G11		
38	P35	One-touch LED	O	One-touch karaoke LED output H: ON	78	P97	G10		
39	P34	KARAOKE LED	O	Karaoke LED output H: ON	79	P96	G9		
40	P33	POWER ON	O	SW 5V ON/OFF H: ON	80	P95	G8		

■ PE5012A (DVDM ASSY : IC501)

• Mechanism Control IC

● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	LODDRV	I/O	Loading motor drive output	33	XCSB	O	DSP parallel command setting output "L"
2	XDF INH	I/O	High impedance (input) at DEFECT ON "L" output at DEFECT OFF	34	ASTB	O	Address strobe of multiplexed address/data bus
3	FOFST3	O	Not used (H fixed)	35	XRESET	I	System reset input "L"
4	EFLG	I	Count data input of error rate Measureable by using timer 1 and 2.	36	SBSY	INT	Subcode frame sync. input (H: S0+S1 period)
5	FSX	I		37	THLD	INT	T HOLD
6	ATBO	I/O	Tracking offset adjustment	38	XABUSY	INT	DSP auto sequence busy input "L"
7	V PB	I	EFM servo lock signal H/L = rough servo / phase servo	39	XMIRQ2	INT	LSI-11 interrupt input "L"
8	FOFST1	I/O	Focus offset adjustment 1	40	VDD	–	Power supply pin
9	VSS	–	GND	41	X2	–	Connect a crystal for main system clock oscillation
10	MAD0	I/O	External address data bus	42	X1	I	
11	MAD1			43	VPP	–	Internal connection Connect to Vss.
12	MAD2			44	PXT2	–	Connect a crystal for sub system clock oscillation
13	MAD3			45	XCURDET	I	Acutuator over-current detection input "L": Servo OFF for 300 ms.
14	MAD4			46	AVSS	–	Ground for A/D converter
15	MAD5			47	LODPOS	I	Loading clamp position SW input
16	MAD6			48	SLDPOS	I	Slider position SW input
17	MAD7			49	DOORSW	I	Not used
18	MA8	O	External address bus	50	FOFST4	I/O	Not used (H fixed)
19	MA9			51	XDSPRST	O	Not used
20	MA10			52	MON	O	Spindle motor ON output "L"
21	MA11			53	FOFST2	I/O	Focus offset adjustment 2
22	MA12			54	OEICG	O	"H": OEIC gain up to 6dB
23	MA13			55	AVDD	–	Analog power supply for A/D converter
24	VSS	–	GND	56	AVREF	I	Reference voltage input for A/D converter
25	MA14	O	External address bus	57	LD1ON	O	650nm laser diode ON signal
26	MA15			58	LD2ON	O	780nm laser diode ON signal
27	(P60)	O	Not used	59	AGOFF	O	"H": AGC of RFIC turns to OFF
28	DRXLD	O	Not used	60	DVD/XCD	O	H: DVD, L: CD
29	XCBUSY	I	DSP command reception is possible "L"	61	DPDXTE	O	Tracking error switch (H: 1 beam, L: 3 beams)
30	WRQ	I	Readable flag of subcode Q	62	TOFSTA	I/O	Tracking balance adjustment A
31	XMRD	O	CPU read pulse "L"	63	XCD2X	O	Not used
32	XMWR	O	CPU write pulse "L"	64	TOFSTC	I/O	Tracking balance adjustment C

■ PD3381A (DVDM ASSY : IC601)

• **System Control IC**

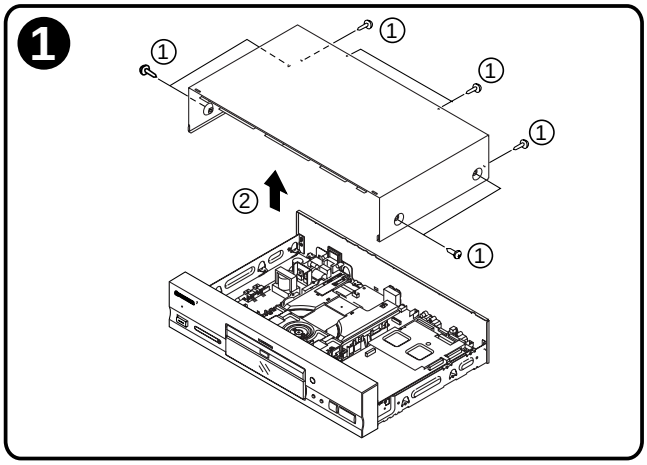
● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	PB14/XIRQ6	I	LSI-11 interrupt #1	41	A16	O	Address bus
2	PB15/XIRQ7	I	AV Chip interrupt #0	42	A17		
3	VSS	–	GND	43	VCC	–	V+5D
4	AD0	I/O	Data bus	44	A18	O	Address bus
5	AD1			45	A19		
6	AD2			46	A20		
7	AD3			47	A21		
8	AD4			48	XCS0	O	(N.C. during ROM mode)
9	AD5			49	XCS1	O	External address decoder enable
10	AD6			50	XCS2	O	
11	AD7			51	XCS3	O	LSI-11 chip select
12	VSS	–	GND	52	VSS	–	GND
13	AD8	I/O	Data bud	53	PA0/XCS4	O	Dolby virtual chip enable (DV-515 only)
14	AD9			54	PA1/XCS5	O	Dolby virtual chip command/data control (DV-515 only)
15	VCC	–	V+5D	55	PA2/XCS6	O	AV Chip chip select
16	AD10	I/O	Data bus	56	XWAIT	I	External wait input
17	AD11			57	XWRL	O	Low Byte write pulse
18	AD12			58	XWRH	O	High Byte write pulse
19	AD13			59	XRD	O	Read pulse
20	AD14			60	PA7	O	Serial data latch pulse
21	AD15			61	VSS	–	GND
22	VSS	–	GND	62	PA8	I	Final-stage mute of audio output
23	A0	O	Address bus	63	PA9	I	Parallel expansion port enable (S9)
24	A1			64	PA10/TIOCA1	I	AV Chip interrupt #1
25	A2			65	PA11/TIOCB1	I	Communication response to FL controller
26	A3			66	PA12/DACK0	O	
27	A4			67	PA13/XDREQ0	I	
28	A5			68	PA14/XDACK1	O	
29	A6			69	PA15/XDREQ1	I	
30	A7			70	VCC	–	V+5D
31	VSS	–	GND	71	CK	O	
32	A8	O	Address bus	72	VSS	–	GND
33	A9			73	EXTAL	–	20MHz ceramic resonator
34	A10			74	XTAL	–	
35	A11			75	VCC	–	V+5D
36	A12			76	NMI	I	D+5V
37	A13			77	VCC (Vpp)	–	V+5D
38	A14			78	WDTOVF	O	
39	A15			79	XRES	I	
40	VSS	–	GND	80	MD0	I	MD1, MD0 = 01 external ROM

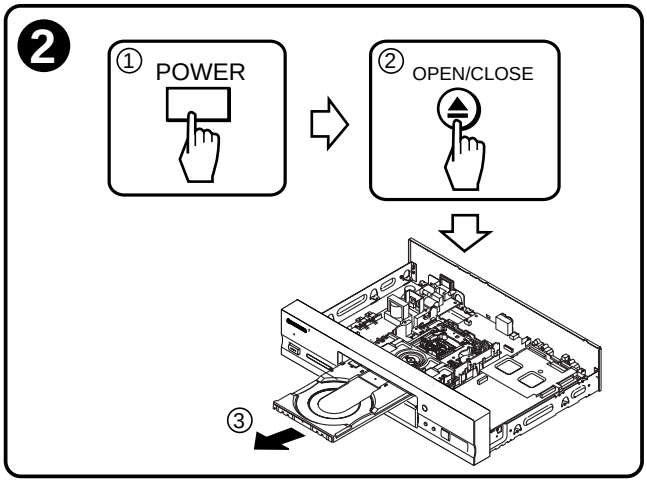
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
81	MD1	I	MD1, MD0 = 10 internal ROM	97	PB0/TIOCA2	I	RS232 transmitable output
82	MD2	I	GND	98	PB1/TIOCB2	I	DAC fs 48/44 selection
83	VCC	–	V+5D	99	VCC	–	V+5D
84	VCC	–	V+5D	100	PB2/TIOCA3	I	HiBit function ON
85	AVCC	–	V+5D	101	PB3/TIOCB3	I	AV Chip interrupt #2
86	AVref	–	V+5D	102	PB4/TIOCA4	I	Communication request from FL controller
87	PC0/AN0	I	Rear panel switch H/M/L = NTSC/Auto/PAL	103	PB5/TIOCB4	I	Block sync. input of external digital input (S9)
88	PC1/AN1	I	Authoring emulator mode setting	104	PB6/TCLKC	I	C2 error correction impossible pulse
89	PC2/AN2	I	(YAKU) special mode setting	105	PB7/TCLKD	I	Dolby virtual chip reset & pulse (DV-515 only)
90	PC3/AN3	I	Reception error (unlock signal) input of DIR (S9)	106	VSS	–	GND
91	AVSS	–	GND	107	PB8/SI0	I	Serial bus data input
92	PC4/AN4	I	Not used	108	PB9/SO0	O	Serial bus data output
93	PC5/AN5	I	Test mode entry	109	PB10/SI1	I	RS-232C RxD
94	PC6/AN6	I	CDG data input	110	PB11/SO1	I	RS-232C TxD
95	PC7/AN7	I	RS232 transmitable input	111	PB12/SCK0	I/O	Serial bus clock input and output
96	VSS	–	GND	112	PB13/XIRQ5	I	LSI-11 interrupt #0

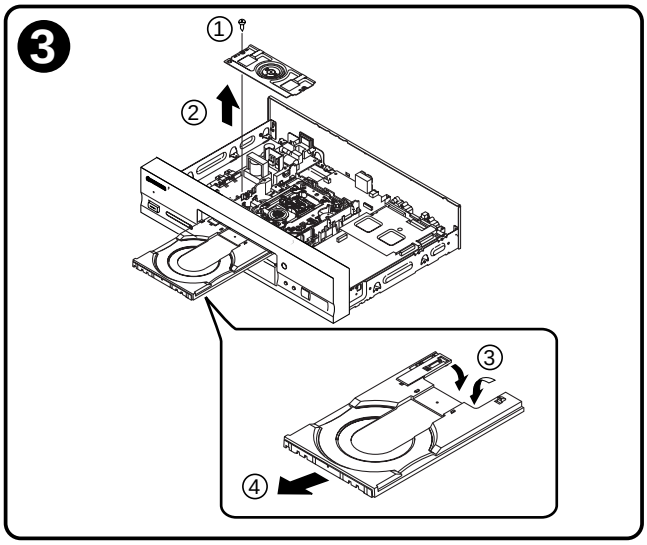
7.2 DISASSEMBLY

BONNET

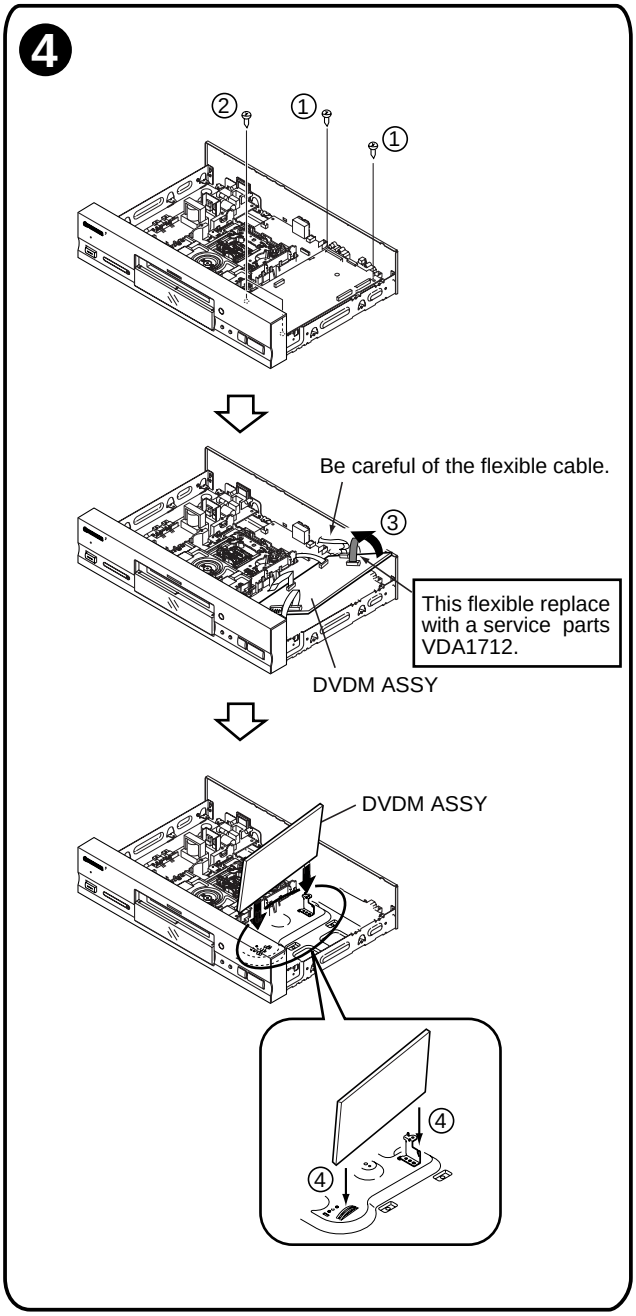


DISC TRAY

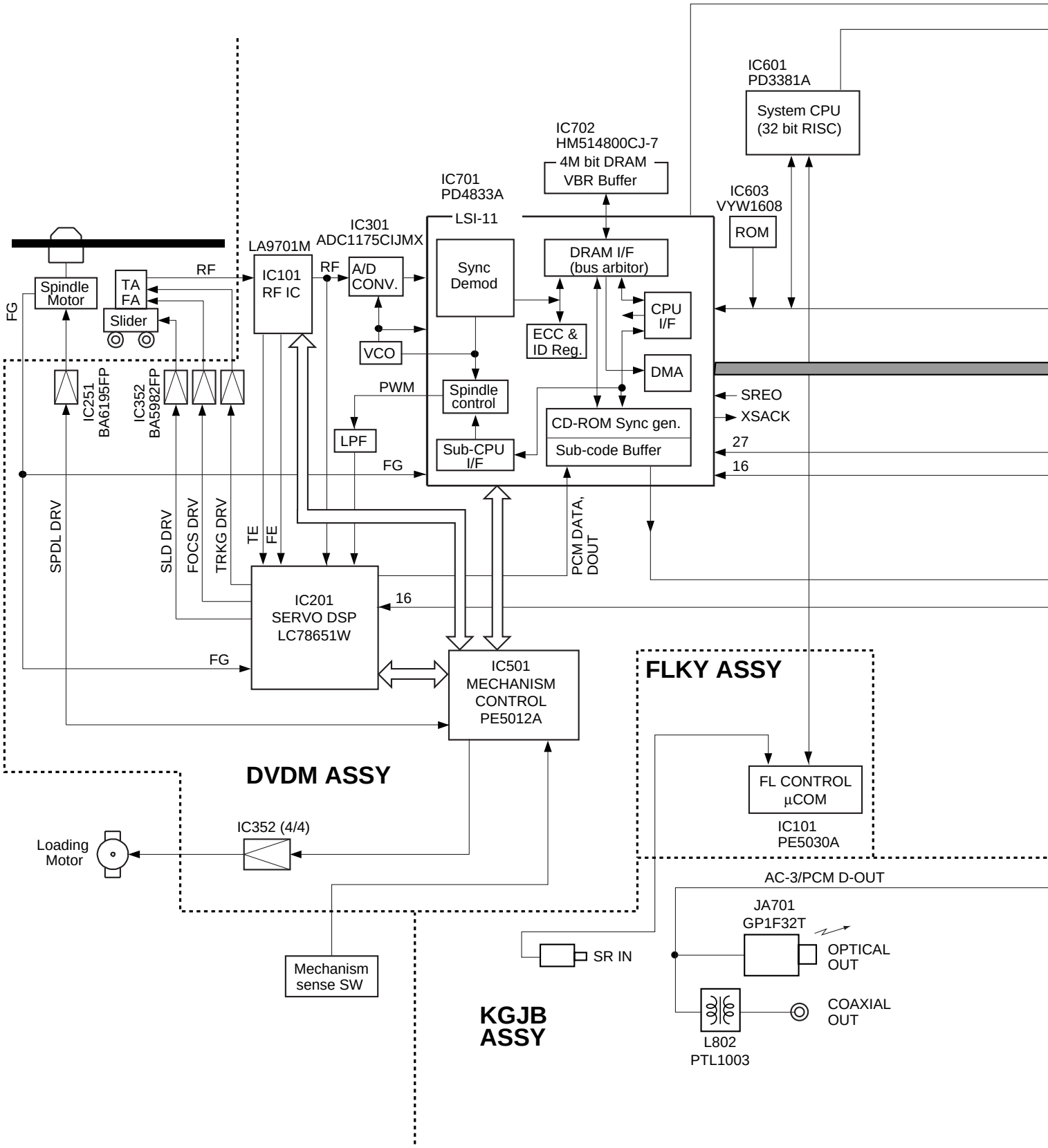


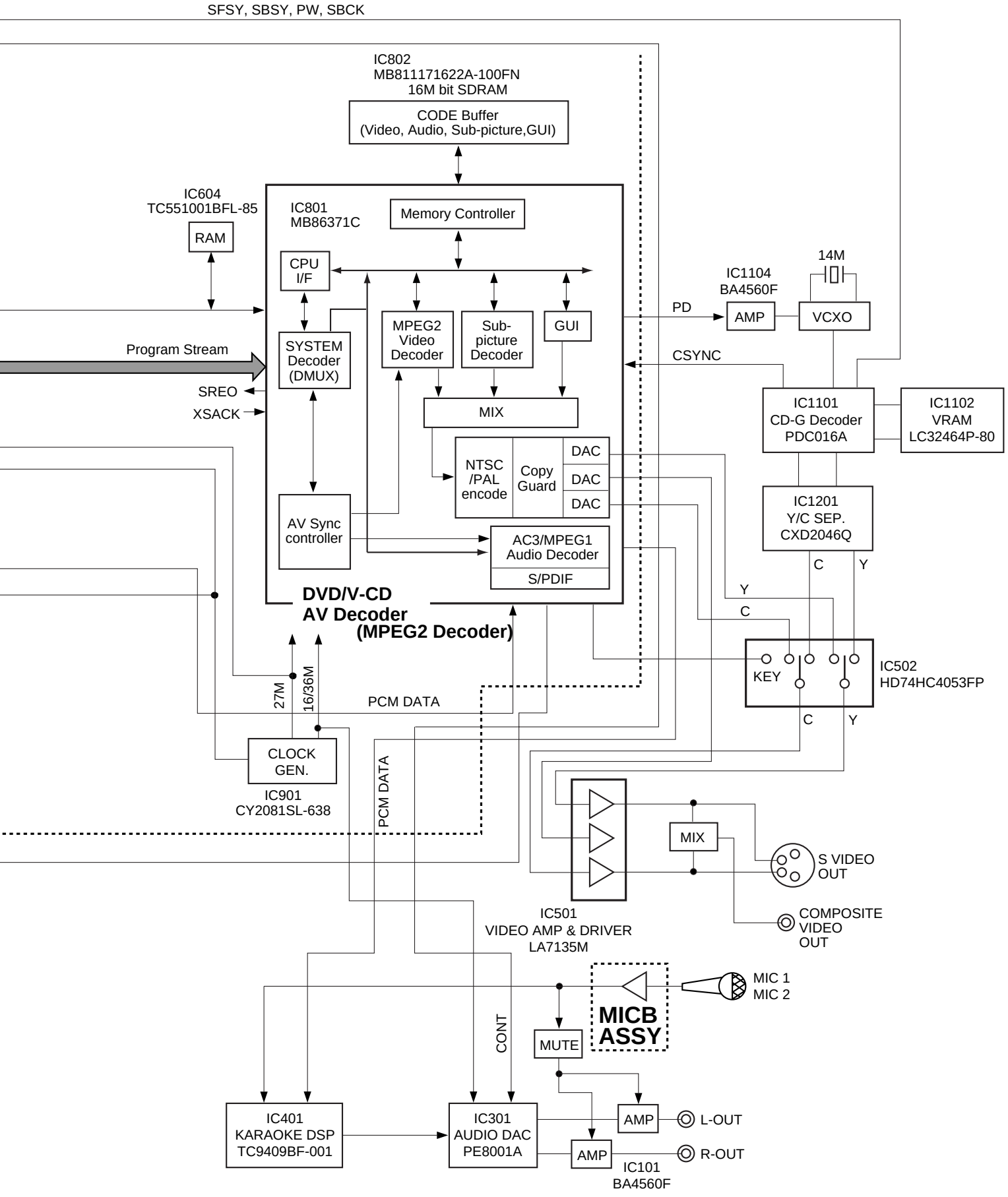


DVDM ASSY



7.3 BLOCK DIAGRAM

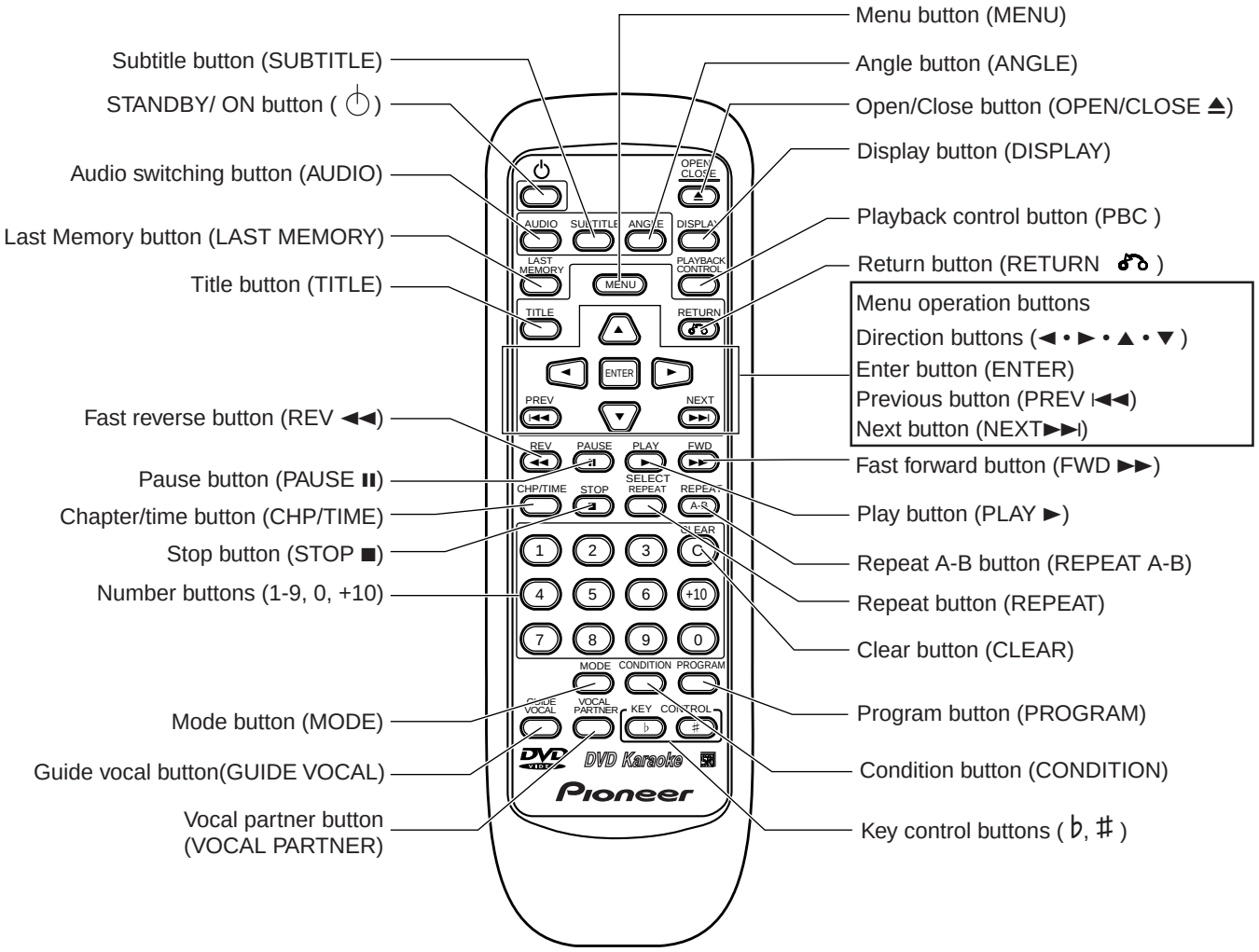



SFSY, SBSY, PW, SBCK
IC802
MB811171622A-100FN
16M bit SDRAM
CODE Buffer
(Video, Audio, Sub-picture,GUI)
IC604
TC551001BFL-85
RAM
IC801
MB86371C
Memory Controller
CPU
I/F
SYSTEM
Decoder
(DMUX)
MPEG2
Video
Decoder
Sub-
picture
Decoder
GUI
MIX
Program Stream
SREO
XSACK
NTSC
/PAL
encode
Copy
Guard
DAC
DAC
DAC
AV Sync
controller
AC3/MPEG1
Audio Decoder
S/PDIF
DVD/V-CD
AV Decoder
(MPEG2 Decoder)
14M
IC1104
BA4560F
PD
AMP
VCXO
CSYNC
IC1101
CD-G Decoder
PDC016A
IC1102
VRAM
LC32464P-80
IC1201
Y/C SEP.
CXD2046Q
C
Y
Y
C
KEY
IC502
HD74HC4053FP
C
Y
27M
16/36M
PCM DATA
CLOCK
GEN.
IC901
CY2081SL-638
PCM DATA
MIX
S VIDEO
OUT
COMPOSITE
VIDEO
OUT
IC501
VIDEO AMP & DRIVER
LA7135M
MIC 1
MIC 2
MICB
ASSY
CONT
MUTE
IC401
KARAOKE DSP
TC9409BF-001
IC301
AUDIO DAC
PE8001A
AMP
L-OUT
AMP
R-OUT
IC101
BA4560F

8. PANEL FACILITIES AND SPECIFICATIONS

8.1 PANEL FACILITIES

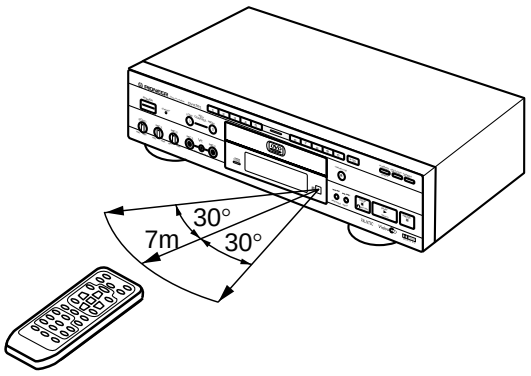
■ Remote control



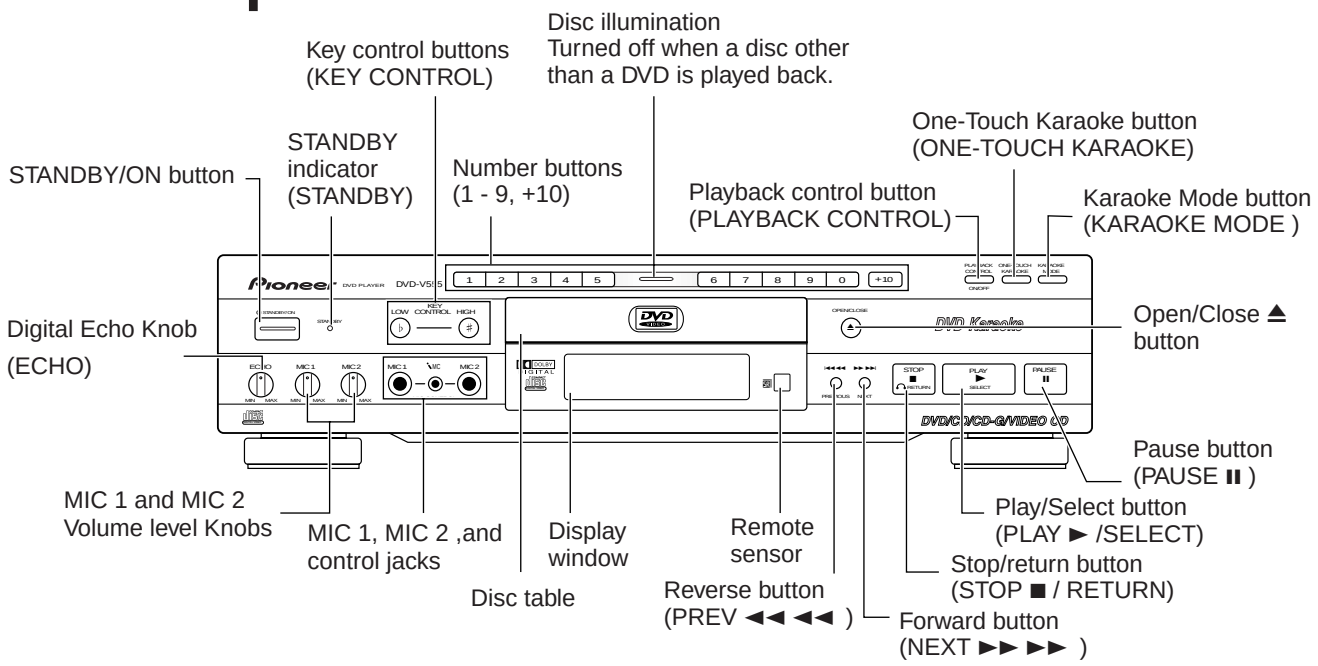
Remote control operation

When operating the remote control, point it at the remote sensor located on the player's front panel. The remote control can be used up to 23 feet (7 m) from the player and within a 30° angle each side of the sensor.

- Exposing the remote sensor to direct sunlight or strong light may cause faulty operation.
- If the CONTROL IN jack on the player's rear panel is connected to another component, point the remote control at that component for operation. Operation is not possible when pointed at this player.



■ Front panel

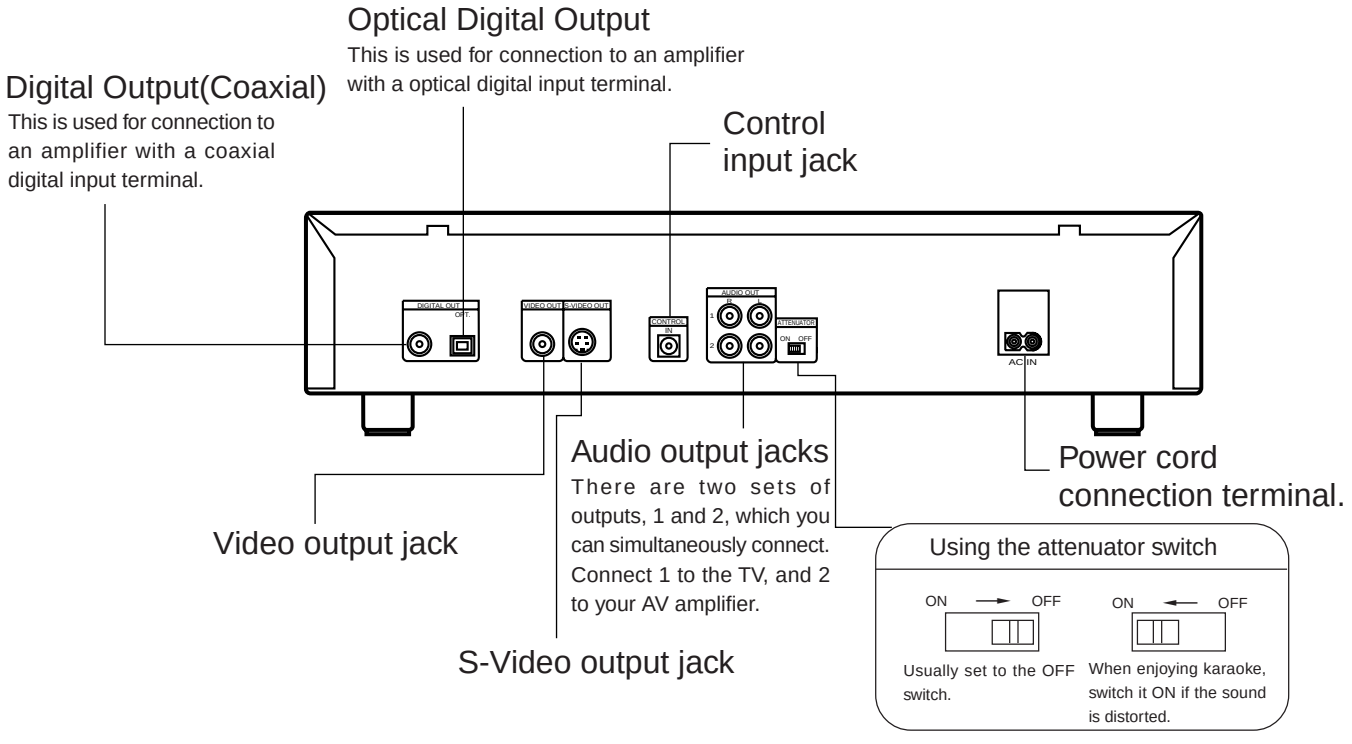


■ Rear panel

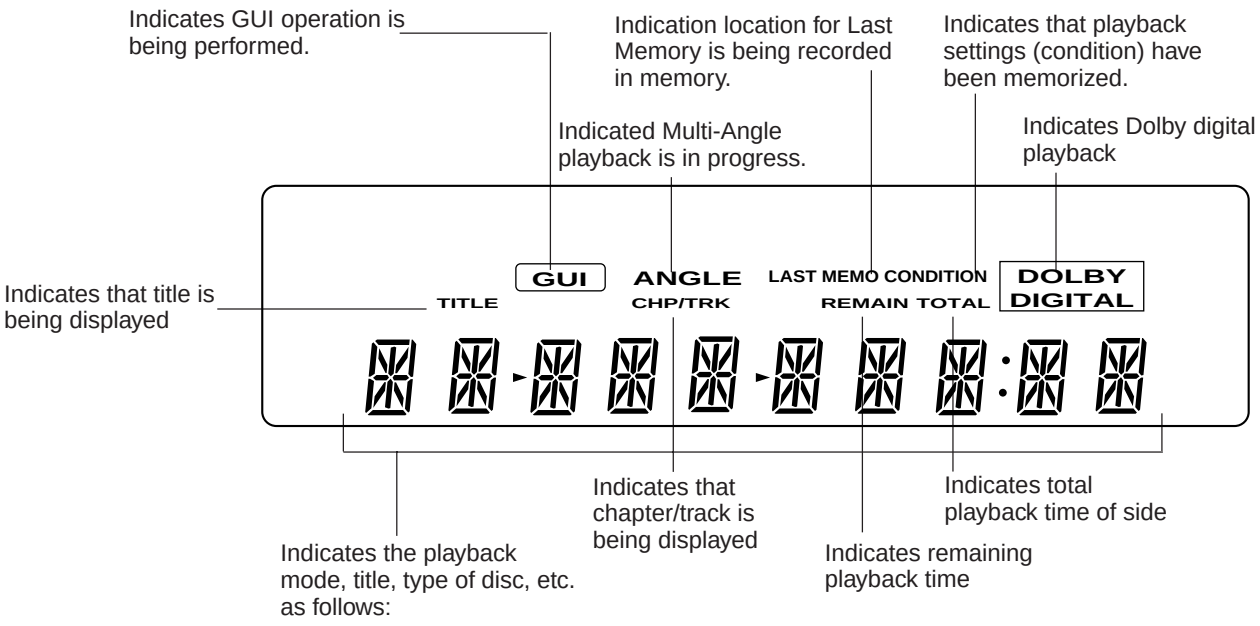
Digital Output Jack

This is used for output of the digital audio signal recorded on DVDs,CDs and Video CDs. Depending on the components connect this digital output to, noise may be generated.

Your amplifier	Regular AV amplifier	Coaxial	Connect to the coaxial jack, and select DOLBY DIGITAL → PCM from the menu.
		Optical	Connect to the optical jack, and select DOLBY DIGITAL → PCM from the menu.
	Dolby Digital (AC-3) compatible amplifier	Coaxial	Connect to the coaxial jack, and select DOLBY DIGITAL from the menu.
		Optical	Connect to the optical jack, and select DOLBY DIGITAL from the menu.



■ Display window



Sample Display

CD	: Compact disc
DVD	: DVD
VIDEO CD	: Video CD
PBC PLAY	: Playback control playback on Video CD
OPEN	: Disc table is opening or is open
CLOSE	: Disc table is closing
PGM	: Program mode
R TRK	: Repeat mode
R A	: Start point of 2 point repeat playback
R AB	: 2 point repeat playback
R TTL	: Repeat playback of the title
R CHP	: Repeat playback of the chapter
R SID	: Disc repeat
REPEAT A	: When memory repeat is selected
REPEAT TRK	: When track repeat is selected
REPEAT CHP	: When chapter repeat is selected
REPEAT SID	: When side repeat is selected
REPEAT TTL	: When title repeat is selected
PLAY	: Playback
STOP	: Stop
PAUSE	: Pause
NO DISC	: No disc
-- OFF --	: Power is turned off
MENU	: Menu mode
TITLE	: Title menu
SETUP	: Set-up menu
COND_MEM	: Condition memory
LAST_MEM	: Last memory
VO_P	: Vocal partner on
G_VO	: Gvide vocal on

8.2 SPECIFICATIONS

General

System ..... DVD system, Video CD system and Compact Disc digital audio system
Power requirements: ..... AC 120 V, 60 Hz
Power consumption ..... 17 W
Weight ..... 3.0kg (6 lb 10 oz)
Dimensions ..... 420 (W) × 285 (D) × 104 (H) mm
(16 $^{9}/_{16}$ × 11 $^{4}/_{16}$ × 4 in.)
(Not including protruding cables, etc.)
Operating temperature ..... +5°C to +35°C (+41°F to +95°F)
Operating humidity ..... 5% to 85% (no condensation)

S-Video Output

Y (luminance) - Output level ..... 1 Vp-p (75Ω)
C (color) - Output level ..... 286 mVp-p (75Ω)
Jacks ..... S-VIDEO jack

Video Output

Output level ..... 1 Vp-p (75Ω)
Jacks ..... RCA

Audio Output

Output level
During audio output ..... 200 mVrms (1 kHz, –20 dB)
Number of channels 2
Jacks ..... RCA

Digital audio characteristics

Frequency response	4 Hz to 22 kHz (DVD fs: 48 kHz) 4 Hz to 20 kHz (CD)
S/N ratio	115 dB
Dynamic range	90 dB
Wow and flutter	Limit of measurement (± 0.001% W. PEAK) or lower

Other Terminals

Optical digital output ..... Optical digital jack
Coaxial digital output ..... RCA jack
CONTROL IN ..... Minijack (3.5ø)

Accessories

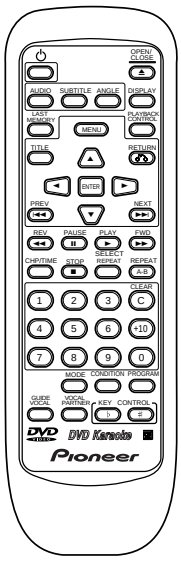
Microphone 1
Remote control unit 1
AA (R6P) dry cell batteries 2
Audio cord 1
Video cord 1
Power cord 1
Operating Instructions 1
Warranty card 1

NOTE:

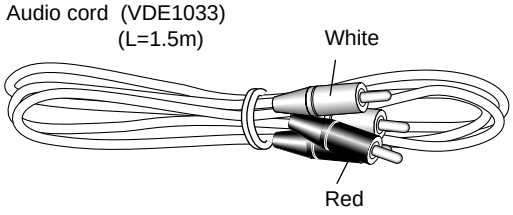
The specifications and design of this product are subject to change without notice, due to improvement.

■ Accessories

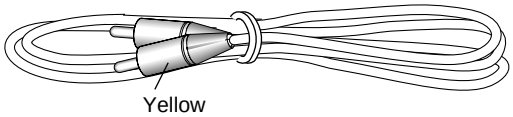
Remote control unit (VXX2616)
(CU-V157)



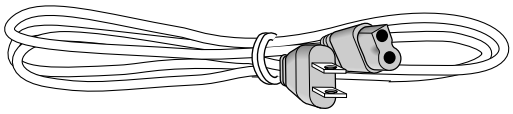
Audio cord (VDE1033)
(L=1.5m)



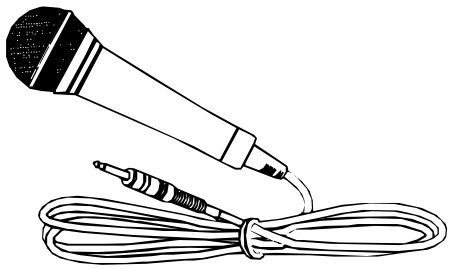
Video cord (VDE1048)
(L=1.5m)



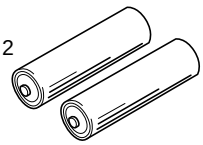
Power cord (ADG7021)



Microphone (VPM1008)



AA/R6P dry cell batteries 2



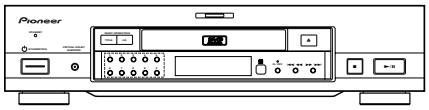
Other included items :

- Operating instructions
- Warranty card

Service Manual

Pioneer

SERVICE GUIDE



ORDER NO.
RRV2004

DVD PLAYER

DV-515

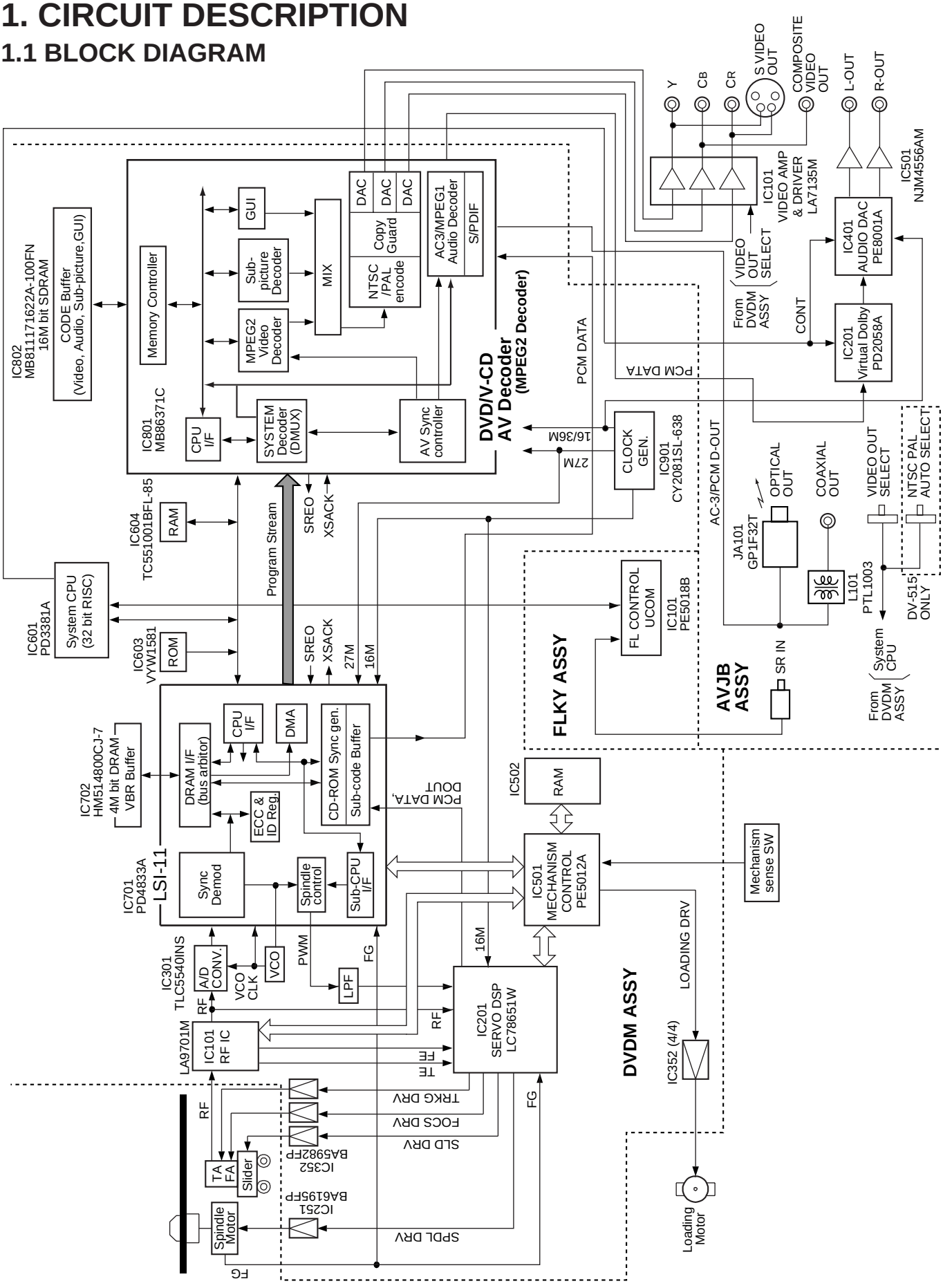
CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE, INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

T – IZM MAR. 1999 Printed in Japan

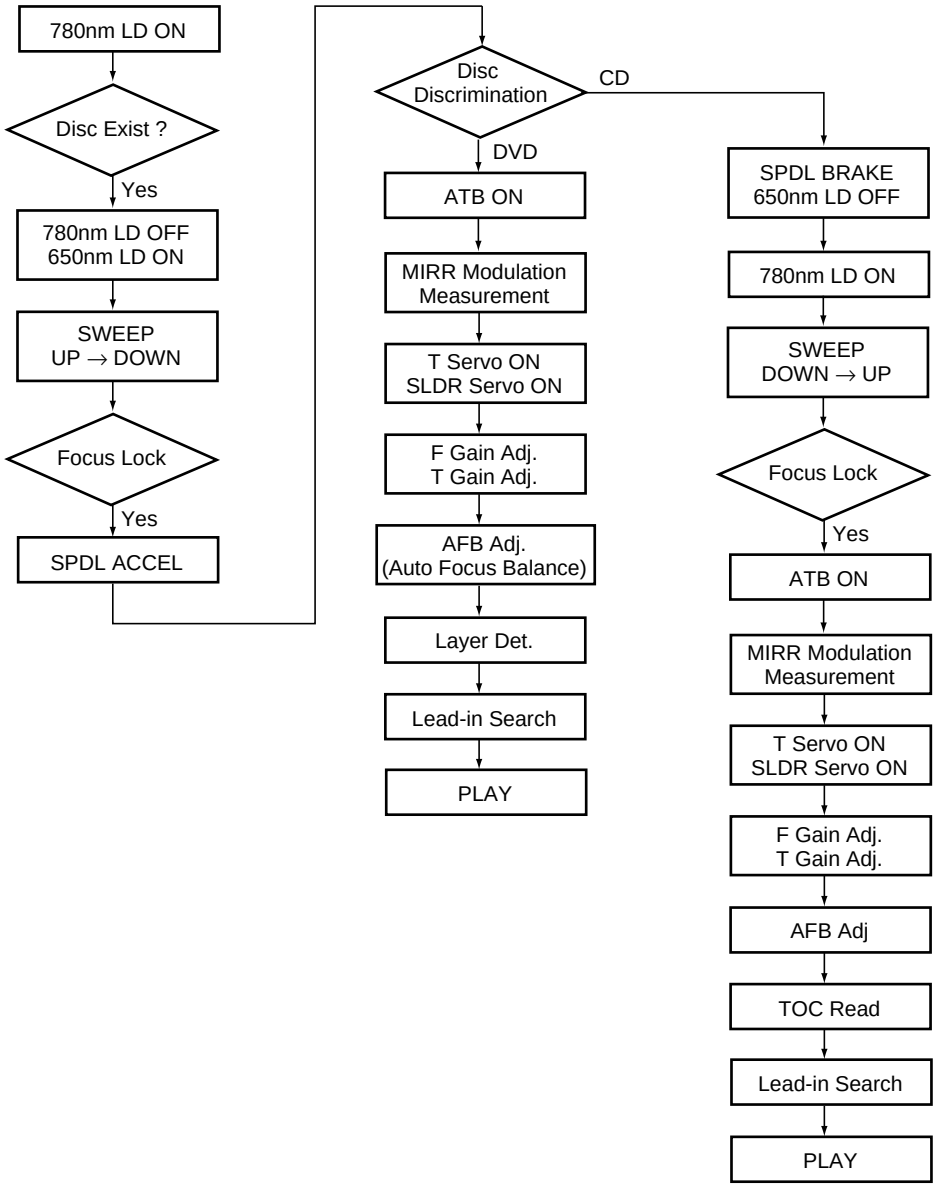
1. CIRCUIT DESCRIPTION

1.1 BLOCK DIAGRAM



1.2 EXPLANATION OF EACH MOVEMENT

1.2.1 Sequence Up to Playback

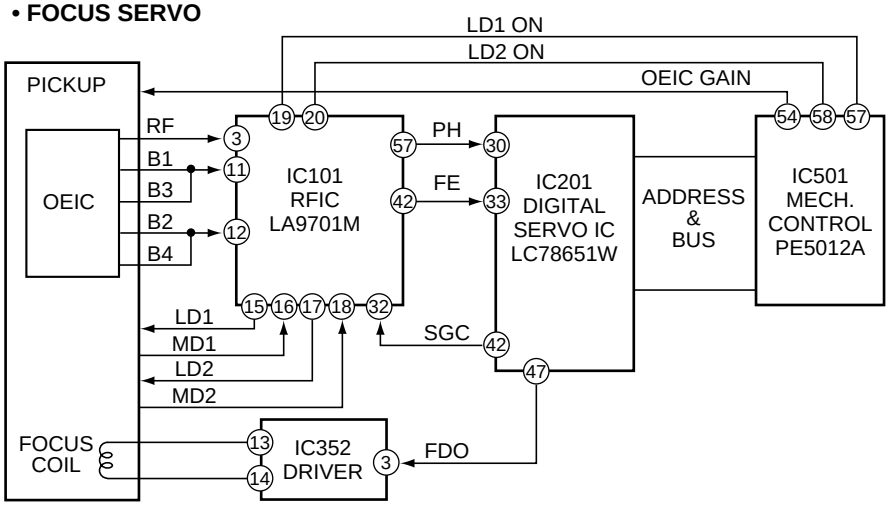


1.2.2 Focus Servo

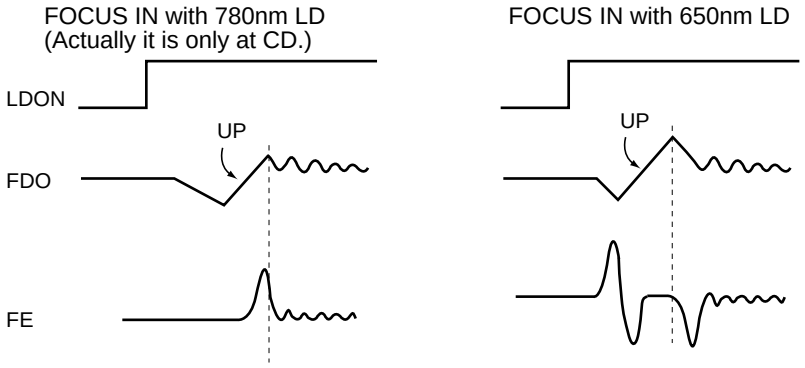
FE generated in the RF IC is sent to the Digital servo IC.
Both DVD and CD, the servo is turned on during the transition from “Upmost” to “Down” of the first-order sine wave with 650 nm LD ON (LD 1 ON = H). For a CD, it turns on during the transition from “Down” to “Up” of the first-order sine wave with 780 nm LD ON (LD 2 ON = H).

The kick-brake pulses, such as those for FOCUS jump, are also output from pin 47 (FDO) of IC201.

• FOCUS SERVO



• FOCUS LOCK TIMING



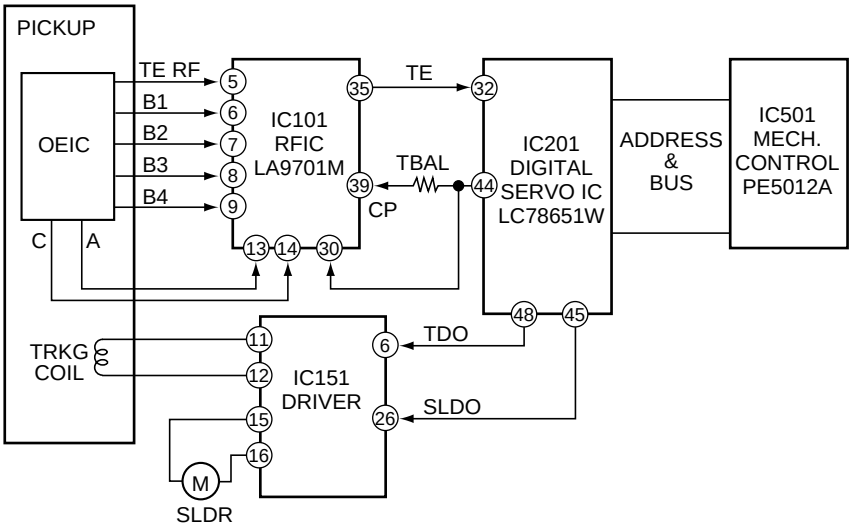
1.2.3 Tracking / Slider Servo

ATB: For phase differential TE (use for DVD), the tracking balance compensation is achieved by outputting the offset from the TBAL output at pin 44 of the digital servo IC, and by biasing the charge pump resistor for phase-difference error of RFIC.
For 3-beam TE (use for CD), the tracking balance compensation is achieved by adjusting the gain balance of A and C in RFIC with the voltage of RFIC-pin 30. The difference is detected by processing TE at pin 32 of IC 201 with an internal digital equalizer.

TDO: In addition to the servo output, the low-band components, such as the kick-brake for jump, are added for TDO output.

SLDO: The low-band components of TE are processed by the internal digital equalizer, and deadband is added for SLDO output. The offset voltage for pickup movement is also included in the SLDO output.

• TRACKING / SLIDER SERVO

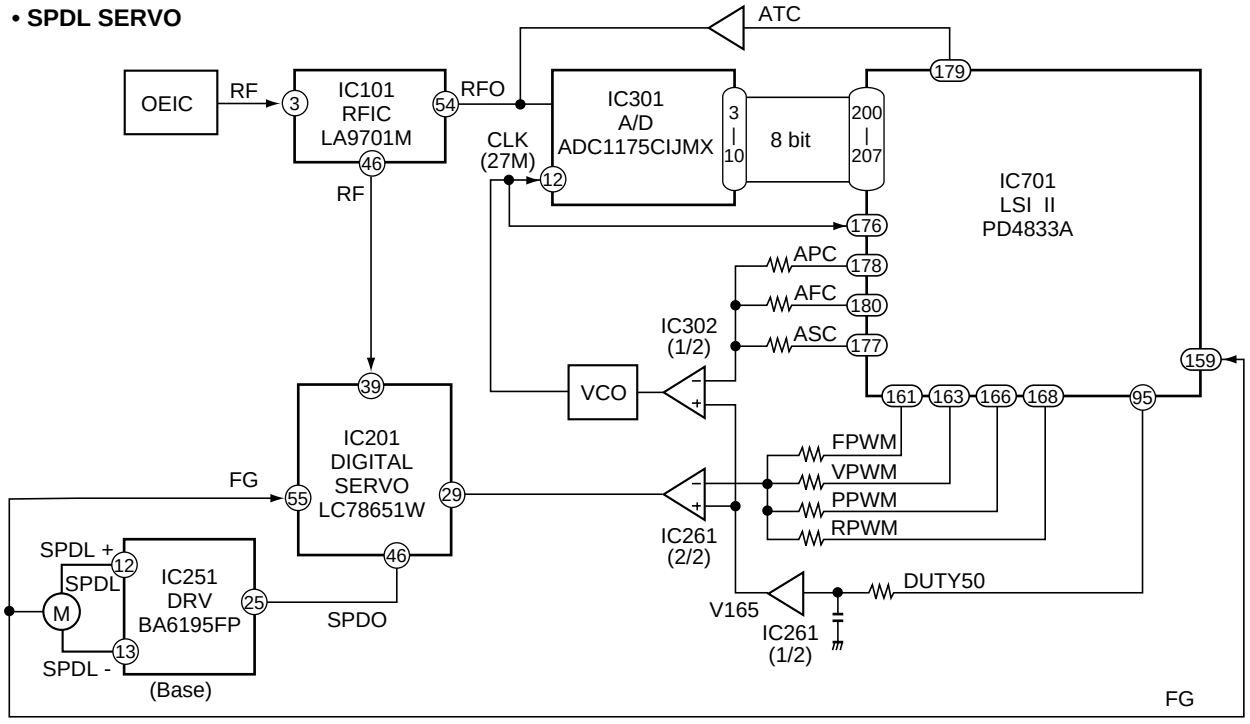


1.2.4 SPINDLE SERVO

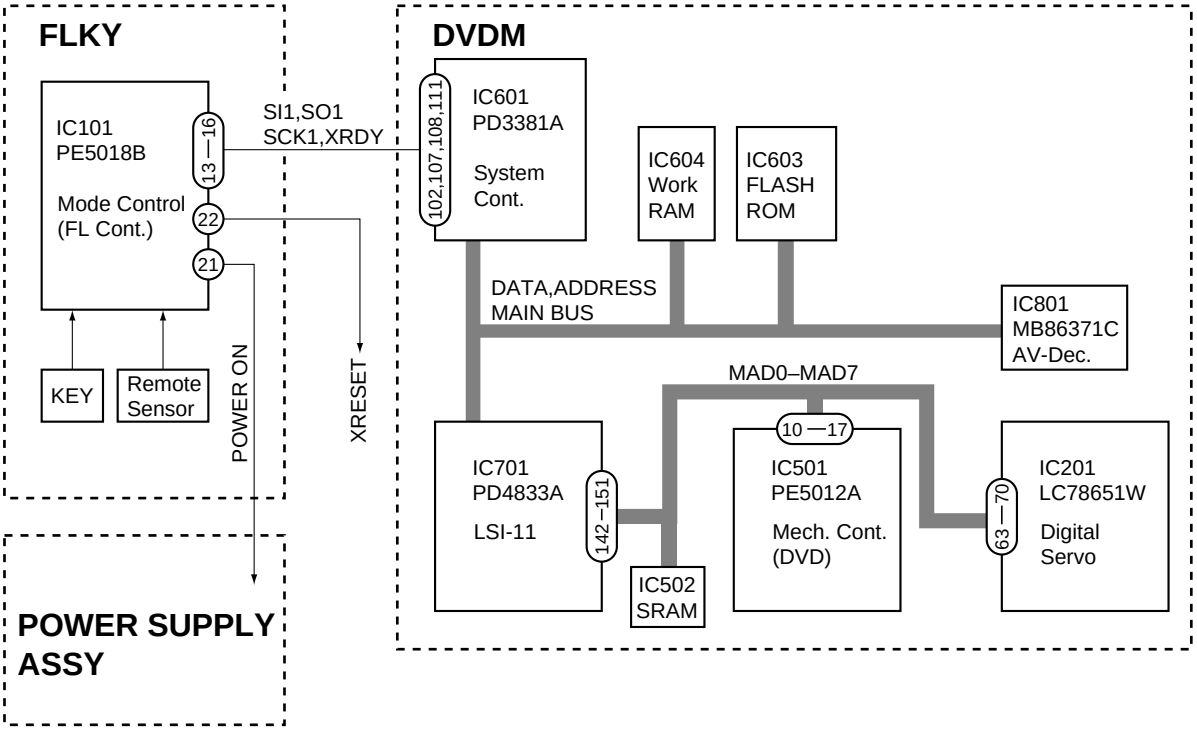
For a CD, the RF signal output from pin 46 of the RF IC is converted to binary in IC201. By comparing the binary value with the reference CLK (clock), the SPDL ERR signal is output from pin 46.

For a DVD, the SPDL ERR signal is generated from the PWM signal output from LSI-II. Upon receiving this signal via pin 29, IC201 also outputs it from pin 46, switching from the CD SPDL ERR signal.

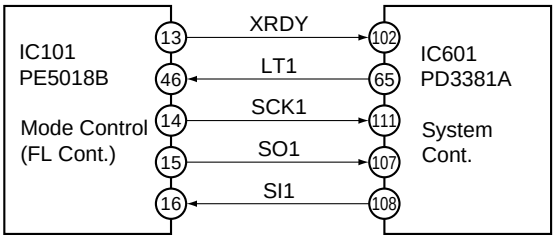
• SPDL SERVO

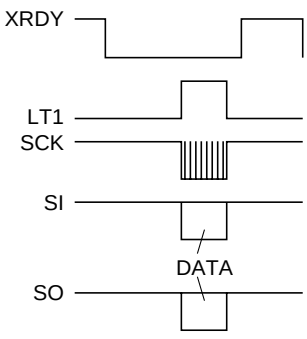


1.2.5 System Control (DV-515)



1) Interface between Mode Cont. and System Cont.





Timing Chart

If there is no communication for 2 sec.,
Mode Cont. turn off the power and reset.

2. TEST MODE

2.1 HOW TO ENTER THE TEST MODE

There is the two following methods in an enters of the test mode.

1. Input [ESC] key and [TEST/RANDOM] key of the LD test mode remote control unit in order under the power on condition.
2. Connect a personal computer with the RS232C terminal (CN106), and input entry command (TE) of test mode from the personal computer.

Note: FL indication and LED come all to light until key operation is done when entering the test mode.

2.2 RELEASE THE TEST MODE

There is the three following methods in a release of the test mode.

1. Turn the power off.
2. Press [ESC] key of the remote control unit. At this time, reset it for a while except for during the LD and CDV set.
3. Connect a personal computer with the RS232C terminal (CN106), and input normal mode entry command (NE) from the personal computer.

2.3 LIST OF TEST MODE FUNCTION

Contents of Command	Condition	Key Name of Remote Control Unit	Code of Remote Control Unit
Open	STOP	REPEAT A	A8 – 48
Close	OPEN	REPEAT A	A8 – 48
Stop	PLAY	REPEAT B	A8 – 44
Play (DVD is only tracing.) Increase the address (at FTS coefficient indication mode)	STOP ———	TV/LDP	A8 – 0F
Play (DVD is with decode.)	STOP	PLAY	A8 – 17
Pause on Decrease the address (at FTS coefficient indication mode)	PLAY ———	CX	A8 – 0E
Pause on/off	PLAY/PAUSE	PAUSE	A8 – 18
Search address input (0 to 9) ∗ Use for other numerical value input		0 to 9	A8 – 00 to 09
Search address input (A to F)	During address input	PGM+1 to 6	
① Search address clear ② Escape the search input mode	During address input Address = 0	CLEAR	A8 – 45
Change the search address input mode (Off→absolute address→addition→subtraction→Off) ∗ Use for other numerical value input		+10	A8 – 1F
Search execution (ignore the wrong address)		CHP/TIM	A8 – 13
Tracking open	PLAY	STEP FWD	A8 – 54
Tracking close	PLAY	STEP REV	A8 – 50
Slider in	TR : Off	SCAN REV Shuttle REV	A8 – 11 A8 – 2C to 2F
Low speed scan REV	TR : On	SCAN REV	A8 – 11
Scan REV (Jump number is variable)	TR : On	Shuttle REV	A8 – 2C to 2F
Slider out	TR : Off	SCAN FWD Shuttle FWD	A8 – 10 A8 – 28 to 2B
Low speed scan FWD	TR : On	SCAN FWD	A8 – 10
Scan FWD (Jump number is variable)	TR : On	Shuttle FWD	A8 – 28 to 2B
Loading in	STOP	SKIP REV	A8 – 53
Loading out	STOP	SKIP FWD	A8 – 52
LD on (650 nm)		TEST+1	A8 – 5E + A8 – 01

Contents of Command	Condition	Key Name of Remote Control Unit	Code of Remote Control Unit
Focus on		TEST+2	A8 – 5E + A8 – 02
Focus sweep		TEST+3	A8 – 5E + A8 – 03
LD on (780 nm)		TEST+4	A8 – 5E + A8 – 04
Focus jump +		MULTI FWD	A8 – 58
Focus jump –		MULTI REV	A8 – 55
Spindle FG on		TEST+5	A8 – 5E + A8 – 05
AFB on/off		TEST+6	A8 – 5E + A8 – 06
FTS coefficient indication	After the address four-digit input	TEST + 9	A8 – 5E + A8 – 09
CD error rate indication	PLAY	TEST + 0	A8 – 5E + A8 – 00
Jitter indication		TEST + DIG/ANA	A8 – 5E + A8 – 0C
Scrren indication on/Switching of the first and second screen	OSD : Off/On	DISPLAY	A8 – 43
Screen indication off	OSD : On	AUDIO	A8 – 1E
Screen indication on/off		PROGRAM	A8 – 4C
Switching of ID display methods (decimal/hexadecimal)		DIG/ANA	A8 – 0C
DISC type designation	STOP	HILITE/INTRO	A8 – 5A
• Forced designation to DVD		+1	+A8 – 01
• Forced designation to CD		+3	+A8 – 03
• Request for Disc sensing		+0	+A8 – 00
Tray close of disc sense inhibition	Checker mode	REPEAT A	A8 – 48
Background color (eight colors) switching		2/R	A8 – 49
Background color (eight colors) switching (reverse toggle)		1/L	A8 – 4B
Video : Component output		DIGITAL EFFECT	A8 – 5C
Video : Composite output		STILL WITH SOUND	A8 – 5B
Audio : 5.1CH forced output (5.1CH output model only)		TEST + FRONT	A8 – 5E + A3 – 99 AF – 65
Audio : Speaker setting change mode on (5.1CH output model only)		TEST + CENTER	A8 – 5E + A3 – 99 AF – 66
Audio : Speaker setting change (5.1CH output model only)		TEST + REAR	A8 – 5E + A3 – 99 AF – 67
Audio : 5.1CH forced output off and setting change mode off (5.1CH output model only)		TEST + LFE	A8 – 5E + A3 – 99 AF – 68
Audio : Speaker setting change mode on (5.1CH output model only)	Checker mode	ESC + CENTER	A8 – 5F + A3 – 99 AF – 66
Audio : Speaker setting change (5.1CH output model only)	Checker mode	ESC + REAR	A8 – 5F + A3 – 99 AF – 67
Audio : Speaker setting change mode off (5.1CH output model only)	Checker mode	ESC + LFE	A8 – 5F + A3 – 99 AF – 68
RF AGC OFF		D-LEVEL+0	A8 – 37 + A8 – 00
RF AGC ON		D-LEVEL+1	A8 – 37 + A8 – 01

● Special Mention Item

(1) Indications for the spindle status are as follows:
A/B : Spindle accelerator and brake
FG : FG servo
SRV : Rough, velocity/phase servo
O_S : Offset addition, rough, velocity/phase servo

(2) The movement of loading in/out starts from the tray open status. After that, this function is executed unless a play and close operation are done.

(3) There are three methods for entering a search address:
① Absolute address designation
→ Searching for the address entered
(indication for the most significant digit : >)
② Additional input
→ Searching for the address with the current ID number plus an entered number
(indication for the most significant digit : +)
③ Subtractive input
→ Searching for the address with the current ID number minus an entered number
(indication for the most significant digit : –)
The above modes can be changed by pressing [+10] key.
Note : A number for addition or subtraction must be entered in hexadecimal.

(4) If disc-type designation is forcibly executed during a mode other than Checker mode, the system controller will abandon disc-type designation after setting the mechanism controller. Therefore, after startup of the player, disc sensing will be performed again for safety.
If disc-type designation is forcibly executed during Checker mode, as disc-type designation is not abandoned, playback will be immediately started.

(5) A background color change in order of blue → green → light blue → red → purple → yellow → gray → black → with the [2/R] key.
It changes in order of gray → yellow → purple → red → light blue → green → blue → black → in the case of the [1/L] key.

(6) 5.1CH forced output becomes 5.1CH mode, the speaker setting will forcibly set to 3/2 + SW.

(7) Speaker setting change mode becomes 5.1CH mode, and it changes in order of 3/2+SW → 3/2 → 2/2+SW → 2/2 → 3/0+SW → 3/0 → 2/0.
It is the same as the test mode and the checker mode.

2.4 THE EXPLANATION OF EACH FUNCTION

2.4.1 FUNCTION

The function that can be operated in the test mode is as the following. Use a LD test mode remote control unit in the test mode.

(1) Door Open/Close

1. Press [REPEAT A] (48) key of the remote control unit.
2. Press [OPEN/CLOSE] key of the player from the stop condition.

(2) Stop

1. Press [REPEAT B] (44) key of the remote control unit.
2. Press [STOP] key of the remote control unit or the player from the stop condition.

(3) Play 1 (Demultiplex exist which it tries to output the playback screen)

1. Press [PLAY] (17) key of the remote control unit.
   • DVD rise up at the tracking close. Playback screen may not appear because the NAVI information isn't read in the test mode.

(4) Play 2 (Demultiplex is absent which performing trace only)

1. Press [TV/LDP] (0F) key of the remote control unit.
   • Perform only tracing with DVD, and there are no video and audio output.
2. Increase the address at the FTS coefficient indication mode.

(5) Pause

1. It becomes pause condition by pressing [CX] (0E) key of the remote control unit in the play.
   • ON/OFF changes alternately with DVD.
2. Pause ON/OFF changes alternately by pressing [PAUSE] (18) key in the play.
   • Only Play 2 is effective with DVD.
3. Decrease the address at the FTS coefficient indication mode.

(6) Tracking Open

1. Press [STEP FWD] (54) key of the remote control unit in the play condition.

(7) Tracking Close

1. Press [STEP REV] (50) key of the remote control unit in the play condition.

(8) Slider In

1. Press [SCAN REV] (11) key of the remote control unit in the tracking off condition.
2. Turn the shuttle of the remote control unit in the REV direction (2C to 2F) in the tracking off condition. (DVD only)

(9) Slider Out

1. Press [SCAN FWD] (10) key of the remote control unit in the tracking off condition.
2. Turn the shuttle of the remote control unit in the FWD direction (28 to 2A) in the tracking off condition. (DVD only)

(10) Scan In

1. Press [SCAN REV] (11) key of the remote control unit in the tracking on condition.
2. Turn the shuttle of the remote control unit in the REV direction (2C to 2F) in the tracking on condition.
   - DVD can be scanned only in the case of the play 2 (playback without demultiplex).

(11) Scan Out

1. Press [SCAN FWD] (10) key of the remote control unit in the tracking on condition.
2. Turn the shuttle of the remote control unit in the FWD direction (28 to 2A) in the tracking on condition.
   - DVD can be scanned only in the case of the play 2 (playback without demultiplex).

(12) Loading In/Out

When pressing [SKIP REV] (53) key of the remote control unit in the open condition, it loads in the clamp direction. Then it loads in the open direction when pressing [SKIP FWD] (52) key.

- This function can practice only when it is indicated with "OPEN" in FL.

(13) Search Address Input Entry

It becomes the address input mode when [+10] (1F) key is pressed. (indication for the most significant digit : >)
Indicate the last address as the initial condition in this time.
Only in case of DVD, addition search (indication for the most significant digit : +) and subtraction search (indication for the most significant digit : –) are able to select in order by pressing [+10] key continuously.
The address where input value was added to the present address is make to search with addition search.
The address where input value was subtracted to the present address is make to search with subtraction search.
In case of CD is only absolute time search.
Also address clear and release from the address input mode are able to perform by 2 steps by pressing [CLEAR] (45) key.

(14) Search Address Input

Press [0] to [9] keys of the remote control unit.
Set up the address by the hexadecimal number with DVD.
When [PROGRAM] (4C) key is pressed in the address input mode, input mode changes to hexadecimal number input (Indicates "*" mark), and [1] to [6] keys are input as [A] to [F].
At this time, [7], [8], [9] and [0] keys are not accepted.
Also the hexadecimal number input and the decimal number input can be changed with toggle.

(15) Search Practice

1. Press [CHP/TIM] (13) key of the remote control unit.
   Practice the on screen no playback (Doesn't demultiplex) after the search with DVD.
2. Press [PLAY] (17) key of the remote control unit.
   Practice the on screen playback (demultiplex exists) after the search with DVD.

(16) Auto Digital On/Off

Auto Digital ON/OFF switches every time [DIG/ANA] (0C) key of the remote control unit is pressed.

(17) Screen Display On

1. Press [DISPLAY] (43) key of the remote control unit.
2. Display on/off switches every time [PROGRAM] (4C) key of the remote control unit is pressed.
   - When [DISPLAY] key is pressed in the display on, change the part number indication of the microprocessor and revision indication.
   - Initial state is screen display on and it becomes the part number indication of the microprocessor.

(18) Screen Display Off

1. Press [AUDIO] (1E) key of the remote control unit.
2. Display on/off switches every time [PROGRAM] (4C) key of the remote control unit is pressed.

(19) Focus Jump +

Focus jumps in 1 layer from 0 layer when [MULTI FWD] (58) key of the remote control unit is pressed. (DVD only)

(20) Focus Jump –

Focus jumps in 0 layer from 1 layer when [MULTI REV] (55) key of the remote control unit is pressed. (DVD only)

2.4.2 EXPANSION FUNCTION 1

Set the reception mode of expansion function by pressing [TEST] (5E) key of the LD test mode remote control unit, then expansion function is able to execute by pressing the following keys.
Indication for the most significant digit becomes "T" during the reception mode of expansion function. (This mode can on and off with toggle.)

(1) LD On (650n)

Turn the laser diode to on by pressing [TEST] and [1] keys in order.

(2) Focus On

Focus locks by pressing [TEST] and [2] keys in order.

(3) Focus Sweep

Repeat focus sweep by pressing [TEST] and [3] keys in order.

(4) LD On (780n)

Turn the laser diode to on by pressing [TEST] and [4] keys in order.

(5) Spindle FG Servo

Rising up the spindle and FG servo becomes on by pressing [TEST] and [5] keys in order.

(6) AFB On/Off

Switch the AFB on and off with toggle by pressing [TEST] and [6] keys in order.

(7) AGC On/Off

Switch the AGC on and off with toggle by pressing [TEST] and [7] keys in order.

(8) Jitter Value Indication

It becomes the jitter-value indication mode by pressing [TEST] and [DIG/ANA] keys in order.

(9) DSP Coefficient Indication of FTS System

Set up the address (four digits) of the coefficient that it wants to see by the point of search address input, then real time indicates the coefficient in OSD by pressing [TEST] and [9] keys in order.

(10) CD Error Rate Indication

Indicate the value in OSD after measuring is completed by pressing [TEST] and [0] keys in order after set up the measuring time (1 to 8 seconds) by the point of search address input.

(11) Skirt Terminal Output Setting (VIDEO)

Turn the output video signal to VIDEO by pressing [TEST] and [AUDIO] keys in order.

(12) Skirt Terminal Output Setting (S-VIDEO)

Turn the output video signal to S-VIDEO by pressing [TEST] and [SUBTITLE] keys in order.

(13) Skirt Terminal Output Setting (RGB)

Turn the output video signal to RGB by pressing [TEST] and [ANGLE] keys in order.

(14) Virtual Dolby (VDS) ON

Turn the virtual dolby to ON by pressing [TEST] and [FWD SKIP] keys in order. (It is effective in this more than 5 ch of AC3.)

(15) Virtual Dolby (VDS) OFF

Turn the virtual dolby to OFF by pressing [TEST] and [REV SKIP] keys in order.

2.4.3 EXPANSION FUNCTION 2

Set the reception mode of expansion function 2 by pressing [HILITE/INTRO] (55) key of the remote control unit, then expansion function 2 is able to execute by pressing the following keys.

(1) Forced DVD Setting

In the checker mode, set up the condition that DVD is attached forcibly except for the result of disc distinction by pressing [HILITE/INTRO] and [1] keys in order.
In the no checker mode (normal test mode), once execute the setting but abandan it soon.
Therefore, perform the disc distinction again for the safety when rising up the player in this condition.

(2) Forced CD Setting

In the checker mode, set up the condition that CD is attached forcibly except for the result of disc distinction by pressing [HILITE/INTRO] and [3] keys in order.
In the no checker mode (normal test mode), once execute the setting but abandan it soon.
Therefore, perform the disc distinction again for the safety when rising up the player in this condition.

(3) Execute the Disk Distinction

In the checker mode, execute the disc distinction result by pressing [HILITE/INTRO] and [0] keys in order.

2.4.4 EXPANSION FUNCTION 3 (AGC Manual Setting Mode)

Enter theAGC Manual Setting mode by pressing the [D-LEVEL CTRL] (37) key on the remote control unit. This function is enabled when AGC is off with a DVD set.

How to set

When the [D-LEVEL CTRL] (37) key is pressed with a DVD set, brackets [ ] are displayed to the right of the ATB setting, showing that the AGC Manual Setting mode has been entered.
In this condition, AGC set on/off can be achieved by pressing the [0] or [1] key. The set value is displayed in the brackets.
To exit the AGC Manual Setting mode, press the [D-LEVEL CTRL] key again or call the Search Address Input mode with the [+10] key.

2.5 PLAYER REGION CONFIRMATION

This function enables you to confirm the region code and version of ROM in the player.
Use the LD test mode remote control unit for service(GGF1067).

(1) Entry

Press the [ESC] key and [Clear] key in the LD test mode remote control unit to enter region confirmation mode.

(2) Confirmation

Region code and ROM version is displayed on the monitor so you can confirm each code.
(Of course, Region code can not be changed.)

(3) Exit

Press the [ESC] key to exit the Region confirmation mode.

* This function also resets the unit to the initial settings (When shipped from the factory). In fact, User setting(Parental level code number, Condition memory, Last memory, Set-up menu data etc.,) will be lost.

2.6 RAM DISPLAY MODE

This function provides a real time display of the RAM contents at the specified address of the system controller or the mechanism controller.
The display for the system controller shows four bytes, and that for the mechanism controller shows one byte. They cannot, however, be simultaneously monitored. Use the LD test mode remote control unit for this operation.

(1) Entry

Press the [ESC] key and the [TV/LDP] key in sequence to enter the RAM Display mode.

(2) Displays

In this mode, the lowest line of the OSD shows the following:

00000 : 55000000 < F000 : 0001
① ② ③ ④ ⑤

① : Lower 5 digits of the specified RAM address of the system controller. (The actual address is 010XXXXX h.)
② : Contents at the specified address of the system controller (The leftmost byte corresponds to the specified address.)
③ : The angle bracket points to the controller whose data are being displayed in real time.
④ : Lower 4 digits of the specified RAM address of the mechanism controller
⑤ : Contents at the specified address of the mechanism controller

(3) Address setting

Each time you press the [DISPLAY] key, the system controller and the mechanism controller are selected in turn (the angle bracket ③ points toward the current selection).
Pressing the [TV/LDP] key increases the address.
Pressing the [CX] key decreases the address.
Holding these keys increases or decreases the address in units of ten.

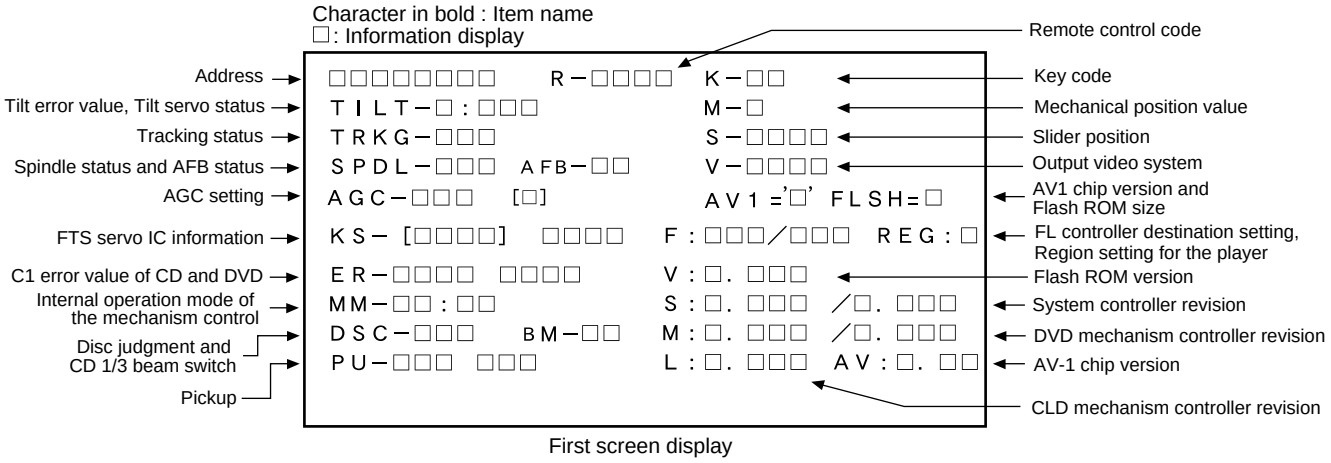
(4) Exit

Press the [ESC] key again to exit this mode.

2.7 TEST MODE SCREEN DISPLAY

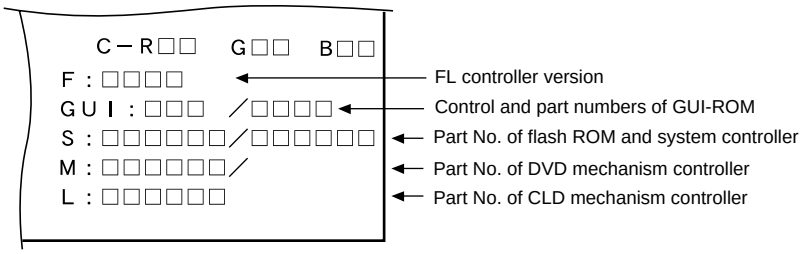
Consecutive double-OSD display is supported during test mode. The screen is composed 10 lines with a maximum of 32 characters per line. It can't be used with the debugging display mode together. Screen display contents including the CLD model.

• Screen Composition



First screen display

Caution :
The first screen and second screen switch by pressing [DISPLAY] key of the remote control unit.
It is only a version display part on the lower right of the screen those contents of display change.
ATB : ON/OFF information display and AGC manual setting display deleted with the second generation.



Second screen display (at lower right portion of the screen)

• Description of Each Item on the Display

(1) Address indication

The address being traced is displayed in number.

DVD	: ID indication (hexadecimal number, 8 digits)	[＊＊＊＊＊＊＊＊]
CD/LD (CLV)	: A-TIME (min. sec.)	[0 0 0 0 ＊＊＊＊]
LD (CAV)	: FRAME	[0 0 0 ＊＊＊＊＊]

(Note : For DVDs, decimal-number indication is possible.)

(2) Code indication of the remote control unit [R – ＊＊＊＊]

The code for the key pressed on the remote control unit, which is received by the FL controller, is displayed while the key is pressed. In the case of the double code, the second code will be displayed.

(3) Key code indication for the main unit [K – ＊＊]

The code for the key pressed on the main unit, which is received by the system controller, is displayed while the key is pressed.

(4) Tilt error value, Tilt servo status [TILT – ＊ : ＊＊＊]

Tilt error value :	[0] to [F]
Tilt servo status :	
Tilt neutral	[N]
Tilt servo on	[ON]
Tilt servo off	[OFF]

(5) Tracking status [TRKG – ＊＊＊]

Tracking on	[ON]
Tracking off	[OFF]

(6) Spindle status [SPDL – ＊＊＊]

Spindle accelerator and brake	[A/B]
FG servo	[FG]
Rough, velocity phase servo	[SRV]
Offset addition, rough, velocity phase servo	[O_S]

(7) Mechanism position value [M – ＊]

Position code	[0] to [8]

(8) Slider position [S – ＊＊＊＊]

CD TOC area	[IN]
CD active area	[CD]
CDV video area	[CDV]
LD active area	[LD]
Side B inside	[B IN]

(9) AGC setting [AGC – ＊＊] [＊]

AGC on	[AGC-ON]
AGC off	[AGC-OFF]
RF AGC on	[1]
RF AGC off	[0]

(10) Output video system [V – ＊＊＊＊]

NTSC system	[NTSC]
PAL system	[PAL]
Auto-setting	[AUTO]

(11) FTS servo IC information

Indications for the following two types of information can be switched:

① DSP coefficient indication [KS – [＊＊＊＊] ＊＊＊＊]
Displays the address (four digits) of the specified coefficient and the setting value (four digits) with [TEST] and [9] keys.

② Jitter value indication [JT – [0 0 0 0] ＊＊＊＊]
Displays the jitter value (four digits) with [TEST] and [DIG/ANA] keys.

(12) Error rate indication

① C1 error value of CD [ER – C1 ＊＊＊＊]
② C1 error value of DVD [ER – ＊＊＊＊ ＊＊＊＊]

(13) Internal operation mode of mechanism controller [MM – ＊＊ : ＊＊]

Internal mechanism mode (2 digits) and internal mechanism step (2 digits) of the mechanism controller
Note : For details, see the specifications of the mechanism controller.

(14) ① Disk sensing [DSC – ＊＊＊]

The type of discs loaded is displayed.
[DVD], [CD], [CDV], [LD], [VCD], [ ]

② CD 1/3 beam switch [BM – ＊＊]

(15) Pickup [PU – ＊＊＊]

The pickup being operating is displayed.

DVD	[DVD]
CLD	[CLD]

The wavelength 650 or 780 is displayed while executing LD on (approx. 10 seconds) with the command.

DVD 650	[DVD 650 nm during LD on]
DVD 780	[DVD 780 nm during LD on]

(16) Version of the AV-1 chip [AV1 = ' ＊ ']

Flash ROM size [FLASH=＊]

(17) ① Destination setting of the FL controller [F : ＊＊＊ / ＊＊＊]

Three characters in front represent the type of model:
515 : DV-515, H9 : DVL-H9, 414 : DV-414,
05 : DV-05, 919 : DVL-919, 717 : DV-717
Three characters that follow represent the destination code.
J : /J, K: /KU, /KC, /KU/KC,
R: /RAM/RL/RD/LB, WY: /WY,

② Region setting of the player [REG : ＊]

Setting value [1] to [6]

(18) Version of the flash ROM [V : ＊ . ＊＊＊]

(19) Revision of the system controller [S : ＊ . ＊＊＊ / ＊ . ＊＊]

① Revision number of the external ROM part (flash ROM) of the system controller <Front>
② Revision of the internal ROM part of the system controller <Rear>

(20) Revision of the DVD mechanism controller [M : ＊ . ＊＊＊ / ＊ . ＊＊＊]

① Revision number of the external ROM part (flash ROM) of the DVD mechanism controller <Front>
② Revision of the internal ROM (core part) of the DVD mechanism controller <Rear>

(21) Revision of the CLD mechanism controller [L : ＊ . ＊＊＊]

(22) Version of the AV-1 chip [AV : ＊ . ＊＊]

(23) Version of the FL controller [F : ＊ . ＊]

(24) Control and part numbers of the GUI-ROM [GUI : ＊＊＊ / ＊＊＊＊]

① Control number of the GUI-ROM (3-figure number of decimal) <Front>
② Part number of the GUI-ROM <Rear>
No GUI model displays as "—— / ——".

(25) The part number of the flash ROM and system controller [S : ＊＊＊＊＊＊ / ＊＊＊＊＊＊＊]

① Part number of the flash ROM <Front>
(Example) VYW1536-A → W1536A
(Example) PD6256A9 → 6256A9
② Part number of the system controller <Rear>
(Example) PD3381T1 → 3381T1

(26) Part number of the DVD mechanism controller

(Example) PD4889A0 → 4889A0
(PE5012A0)

(27) Part number of the CLD mechanism controller

(Example) PD0260A2 → 0260A2

(28) 5.1CH output mode indication (5.1/2)

(29), (30), (31) Speaker ON/OFF indication

3. ERROR CODE

Error codes that are displayed on the FL display without using the remote control unit

FL Display	Detecting Microcomputer	Possible causes	Operation of the unit
GUI ROM ERROR	System controller	Difference in versions of the GUI-ROM and of the software for the system controller	Operates as an OSD model
FLASH ID	System controller	Difference in versions of the One-Time of the system controller and of the flash ROM, or bus line failure	No operation
FLASH SIG	System controller	Difference in memory IDs of the flash ROM	
FLASH WRP	System controller	Write protect error of the flash ROM	No operation
FLASH SUM	System controller	Check sum error of the flash ROM	No operation
MECHA CPU	System controller	Downloading of the software for the mechanical controller not started	No operation
ILLGAL	System controller	The system controller fetched a code other than an operation code	No operation
SLOT	System controller	Inappropriate slot command issued	No operation
CPU AERR	System controller	CPU address error	No operation
DMA AERR	System controller	DMA address error	No operation
AV1 VER	System controller	Difference in versions of the unit and of the AV1	
RESERVE	System controller	Undefined interrupt	No operation

Error codes that are displayed on the FL display by using the remote control unit (Mechanism controller error)

To display: ESC + DISPLAY + DISPLAY; Location of the display: At the center of the FL display

FL	Description of Error	Detecting Microcomputer	Causes if with a DVD	Causes if with a CD (LD)	Operation of the Unit
11	Search timeout	DVD mechanism controller	Search could not be complete within 10 seconds.	Search could not be complete within 7 seconds, and it could not enter the target area within 10 seconds by VCD scan.	CD: Stops, DVD: Continues operation
12	Search retry error	DVD mechanism controller	A search could not be completed after 3 retries, search backup was executed 4 times, or in a case of timeout (6 seconds) while the unit was tracing 11 tracks or more beyond the target while the search operation was converging.	Backup against slider skip was executed 4 times during a search, or slider skip twice resulted in starting from the read-in point.	CD: Stops, DVD: Continues operation
19	Tracing timeout while converging	DVD mechanism controller	Timeout (10.5 seconds) while tracing at the stage of convergence of a search.		Stop
1B	Index 0 search error	DVD mechanism controller		During Track (Index) Search, the search for the beginning of a program could not be completed within 3 seconds (20 seconds in the case of Index Search) after positioning based on the TOC data was completed.	Stop
22	Timeout of slider inner circumference	DVD mechanism controller	Inside switch could not ON within 2 seconds.		Stop
23	Timeout of slider outer circumference	DVD mechanism controller	Inside switch could not OFF within 2 seconds.		Stop
33	No FOK pulse during playback CLVA	DVD mechanism controller	No FOK pulse during 4 loops or more after the spindle was PLL locked and restarting was tried 4 times and more. No FOK pulse during 4 loops or more until the spindle was PLL-locked after the spindle kick.	No FOK pulse during 2 loops or more after the spindle was PLL-locked and restarting was tried 4 times and more. No FOK pulse during 2 loops or more until the PLL was locked after CLVA.	Adjusts focus at the innermost circumference and tries to return to its position where the error was generated (for 3 times),then opens. If the same error persists after one retry, the tray opens. (No FOK pulse)
38	Disc-type-sensing error	DVD mechanism controller	If normal starting was impossible in the following three cases, disc-type sensing will be retried if error No. 33, 4*, 5*, 7*, or C3 occurs: (1) startup with the first disc-type-sensing result, (2) forced startup with another disc by designating the disc type, (3) forced startup with the original disc by designating the disc type.		Open

FL	Description of Error	Detecting Microcomputer	Causes if with a DVD	Causes if with a CD (LD)	Operation of the Unit
39	SGC converge timeout	DVD mechanism controller	SGC could not converge during detects the peak		Open
41	Spindle timeout	DVD mechanism controller	The unit did not enter Stop mode within 10 seconds of issuance of a Stop command.		Stop
48	Spindle FG transition timeout	DVD mechanism controller	The spindle could not converge into within ± 12% of the target FG rotation speed within 10 seconds after spindle kick, or the target FG rotation speed was not achieved 5 times or with 1-mS-interval interrupts within 150 mS after AGC was completed.		Stops. (FG timeout)
49	Spindle PLL transition timeout	DVD mechanism controller	The rotation speed of the spindle became 1.5-fold and more that at the innermost circumference of the DVD during three loops, or the spindle could not be locked within 1 second before AGC started.		Stops. ("73" is displayed during starting process.)
4A	Spindle lock timeout	DVD mechanism controller	Spindle could not lock more than 1 second before start the AFB.		Stops. ("73" is displayed during starting process.)
51	Auto sequence timeout of peak detection	DVD mechanism controller	ABUSY did not return within a specified time after the DDTCT (peak detection) command was sent.		Stop
52	Auto sequence timeout of focus jump down	DVD mechanism controller	ABUSY did not return within a specified time after the FJMPD (Focus jump 1 to 0) command was sent.		Stop
53	Auto sequence timeout of focus jump up	DVD mechanism controller	ABUSY did not return within a specified time after the FJMPU (Focus jump 0 to 1) command was sent.		Stop
54	Auto sequence timeout of play AGC	DVD mechanism controller	ABUSY did not return within a specified time after the GSUMON (play-AGC-measuring) command was sent.		Stop
55	Auto sequence timeout of disc-type-sensing	DVD mechanism controller	ABUSY did not return within a specified time after the DJSRT (disc-sensing) command was sent.		Stop
56	Auto sequence timeout of ATB2	DVD mechanism controller	ABUSY did not return within a specified time after the TBLOFS (Internal ATB after the completion of external ATB) command was sent.		Stop
57	Auto sequence timeout of tracking servo ON	DVD mechanism controller	ABUSY did not return within a specified time after the TSON (tracking servo ON) command was sent.		Stop
58	Auto sequence timeout of ATB1	DVD mechanism controller	ABUSY did not return within a specified time after the TBL (external ATB) command was sent.		Stop
59	Auto sequence timeout of focus gain adjustment	DVD mechanism controller	ABUSY did not return within a specified time after the FGN (focus gain adjustment) command was sent.		Stop
5A	Auto sequence timeout of tracking gain adjustment	DVD mechanism controller	ABUSY did not return within a specified time after TGN (tracking gain adjustment) command was sent.		Stop
5B	Auto sequence timeout of offset adjustment	DVD mechanism controller	ABUSY did not return within a specified time after the CMDAVE (offset adjustment) command was sent.		Stop
5C	Auto sequence timeout of modulation factor measurement	DVD mechanism controller	ABUSY did not return within a specified time after the ADJMIR (modulation factor measurement) command was sent.		Stop
5D	Auto sequence timeout of auto focus bias	DVD mechanism controller	ABUSY did not return within 2 seconds after the AFB (auto focus bias) command was sent.		Stop
5E	Auto sequence timeout of RF count	DVD mechanism controller	ABUSY did not return within a specified time after the RFSMP (RF count) command was sent.		Stop
5F	Auto sequence already busy	DVD mechanism controller	A command could not be sent because ABUSY was low.		Stop
62	Pause retry error	DVD mechanism controller	Pause mode could not be restored within three retries after it had been released.		Continues operation

FL	Description of Error	Detecting Microcomputer	Causes if with a DVD	Causes if with a CD (LD)	Operation of the Unit
71	ID readout check failure during playback	DVD mechanism controller	An ID could not be read for 160 loops (about 480 mS) or more during tracing, or recovery (restart) was tried for 3 times after detecting high speed (1.3-fold of ID=20000H rotation) or low speed (0.7-fold of ID=300000H rotation).		Stop
72	Subcode check failure during playback	DVD mechanism controller		No frame could be read for 3 seconds or more, or the subcode could not be read during 2 seconds before the TOC read-in search.	Stop
73	ID readout failure during startup	DVD mechanism controller	An ID could not be read within 1 second after PLL lock, or the spindle detected an abnormality (uncapturable [beyond ± 12%] high speed [1.5-fold of ID=20000H rotation] within 5 seconds after finishing the kick.		Opens (ID readout failure)
74	Subcode check failure during startup	DVD mechanism controller		No subcode could be read within 3 seconds after AFB had been finished.	Opens (Subcode readout failure).
81	Timeout for reading TOC of the mechanism controller	DVD mechanism controller		TOC readout took 30 seconds or more.	Stop
82	Timeout for reading TOC of the system controller	DVD mechanism controller		Reading TOC of the system controller took 30 seconds or more.	Stop
A1	Communication timeout of DSP command	DVD mechanism controller	A command could not be issued to DSP because Command Busy (XCBUSY) was in force (XCBUSY = L) for a specified time (about 1024 mS).		Open
A2	Communication timeout for reading DSP coefficient	DVD mechanism controller	Command Busy (XCBUSY) was in force for a specified time (about 1024 mS) before and after a coefficient read command was issued to DSP, or the address echo-back after command issuance did not match the setup address.		Open
A3	Communication timeout for writing DSP coefficient	DVD mechanism controller	Command Busy (XCBUSY) was in force for a specified time (about 1024 mS) before and after the coefficient write command was issued to DSP.		Open
A4	Communication timeout for continuously writing DSP coefficient	DVD mechanism controller	Command Busy (XCBUSY) was in force for a specified time during continuous coefficient writing, or before and after a continuous write command was issued to DSP.		Open
B1	Timeout error for backup	DVD mechanism controller	Codes could not be read for a specified time during the backup process.		Stops (the mechanical controller operates independently).
B2	Retry error for backup	DVD mechanism controller	Tracing impossible after a specified number of iterations of backup operations.		Stops (the mechanical controller operates independently).
B3	Retry error for trace	DVD mechanism controller	During tracing, runaway was detected after three iterations of backup operations for detecting runaway.		Stops (the mechanical controller operates independently).
C3	Detection of tracking overcurrent	DVD mechanism controller	During playback, the overcurrent detection port was at L for 300 ms or more continuously.		Stops (the mechanical controller operates independently).
(C5)	Short-circuit test corresponding error	DVD mechanism controller	While the power was on, the overcurrent detection port was at L for 40 ms or more continuously.		Turns off the power instantly (No indication on the FL display and no writing to flash memory)
C6	Child process stack overflow	DVD mechanism controller	The child stack overflowed.		Forcibly stop the unit with the mechanism controller, then reset with the system controller.

FL	Description of Error	Detecting Microcomputer	Causes if with a DVD	Causes if with a CD (LD)	Operation of the Unit
C7	SRAM error (checksum)	DVD mechanism controller	The checksum for the SRAM object data during Stop mode didn't match that during downloading.		The object data of the mechanism controller is reloaded.
C8	Mechanical controller runaway	DVD mechanism controller	Runaway of the mechanical controller was detected by the watchdog timer (105 mS).		The object data of the mechanism controller is reloaded.
CA	No-download error (download demand)	DVD mechanism controller	Downloading was demanded once the power was turned on.		Downloads the object data of the mechanism controller.
D1	SRAM device error	DVD mechanism controller	Reading from and writing to SRAM were impossible after the power was turned on.		No operation
D2	DSP device error	DVD mechanism controller	Reading from and writing to DSP were impossible after the power was turned on.		No operation
D3	LSI-II device error	DVD mechanism controller	Reading from and writing to LSI-II were impossible after the power was turned on.		No operation. In a case of a failure of the LSI-II, the error data may not be transmitted to the system controller.
E3	Violation against digital copy guard	System controller			Stop
F5	Tray being pushed	DVD mechanism controller	The Tray switch that had been Open mode was forcibly changed to a mode other than Open by an external force.		Closes
F8	Loading timeout	DVD mechanism controller	Loading, unloading or clamping could not be completed within a specified time (about 5 seconds).	(1) Loading, unloading or clamping could not be completed within a specified time. (2) Tilt error could not be canceled by reaching within the dead zone within 5 seconds.	Reverses the loading direction. If timeout is repeated upon retry, the unit stops.
FC	Focus	DVD mechanism controller	Focus could not be achieved when focus-in was tried and sweeping was done three times with a disc in the tray after disc-type sensing had been completed.	(1) A setup command was issued from the system controller with no disc loaded. (2) During setup, when the slider was moving to the startup position, the focus of an LD was out or focusing of a CD/ CDV did not succeed after three tries. (3) During startup, the maximum duty for the slider servo continued for three loops or more. (4) Focus of the LD was out during CAV/CLV sensing. (5) During TOC reading, the focus was out.	Stops wherever possible then opens (stops in the case of side B).
FE	TOC read	DVD mechanism controller		The entire TOC could not be read within 30 seconds after the first subcode was read.	CD: Stops (TOC read timeout), LD: Operates as if there were no TOC.

4. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

●List of IC

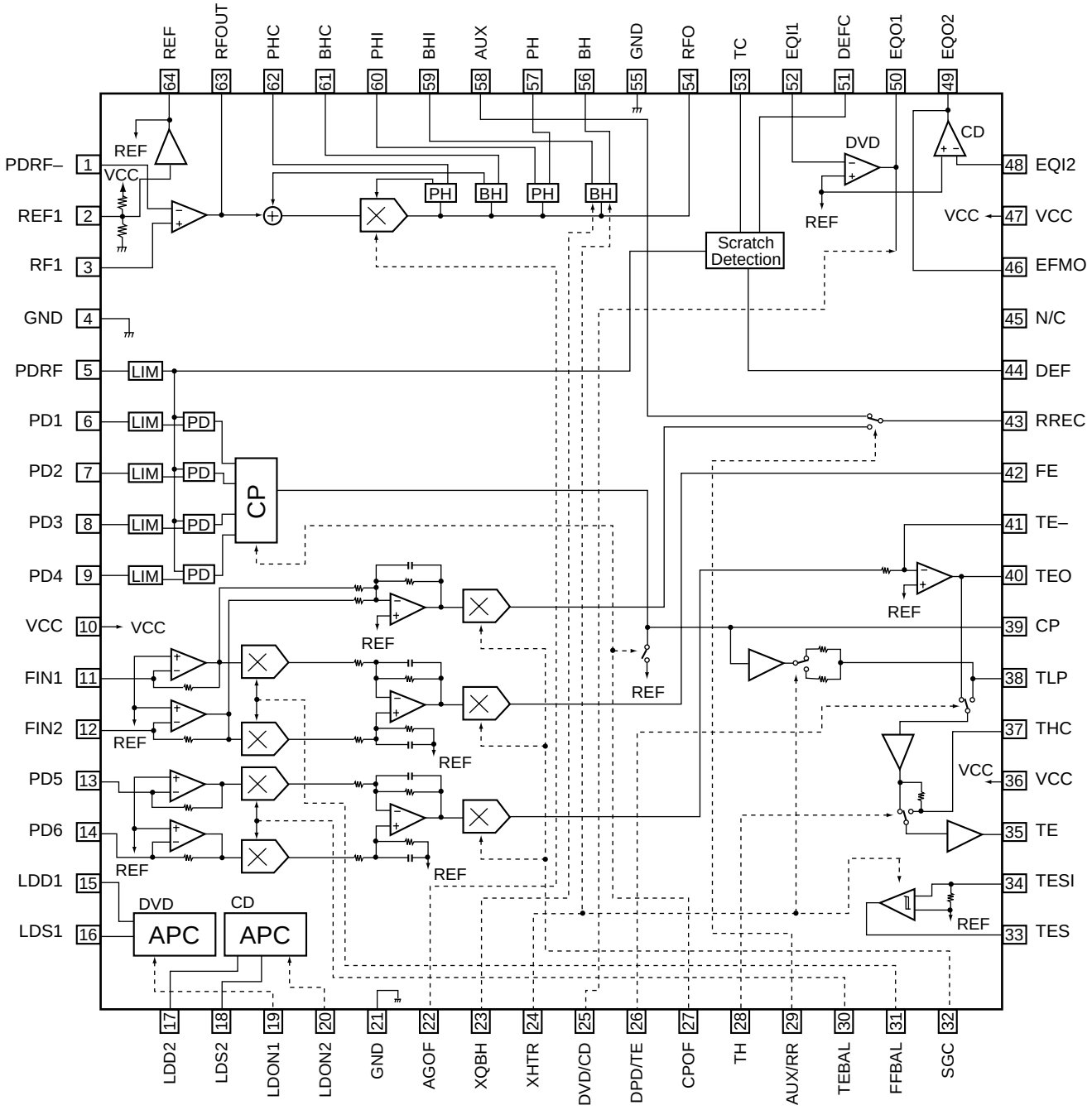
LA9701M, LC78651W, CXD1854Q*, MC44724A*

* : Not used for DV-515.

■ LA9701M (DVDM ASSY : IC101)

• RF IC

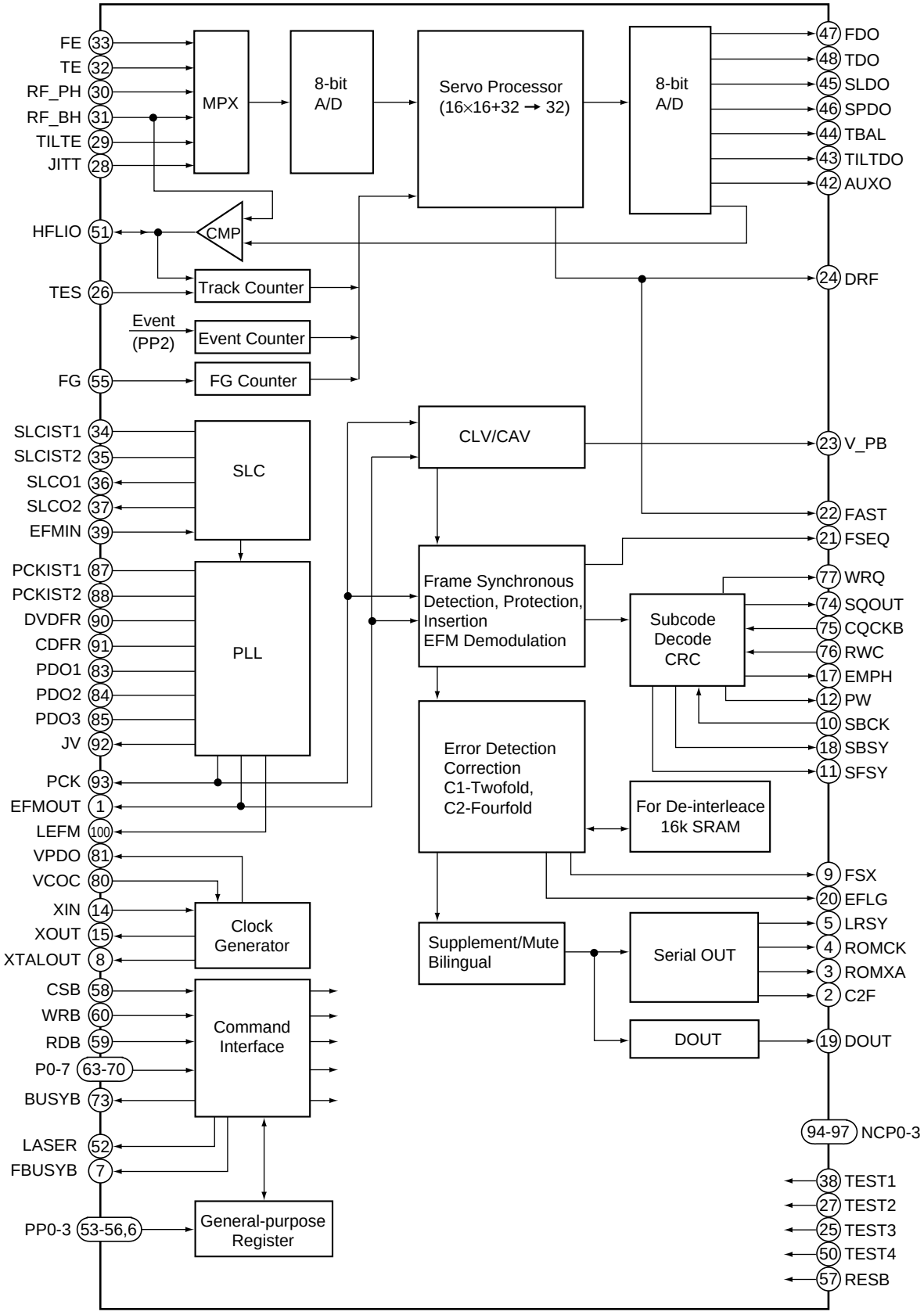
●Block Diagram



■ LC78651W (DVDM ASSY : IC201)

• DSP IC

●Block Diagram



● Pin Function

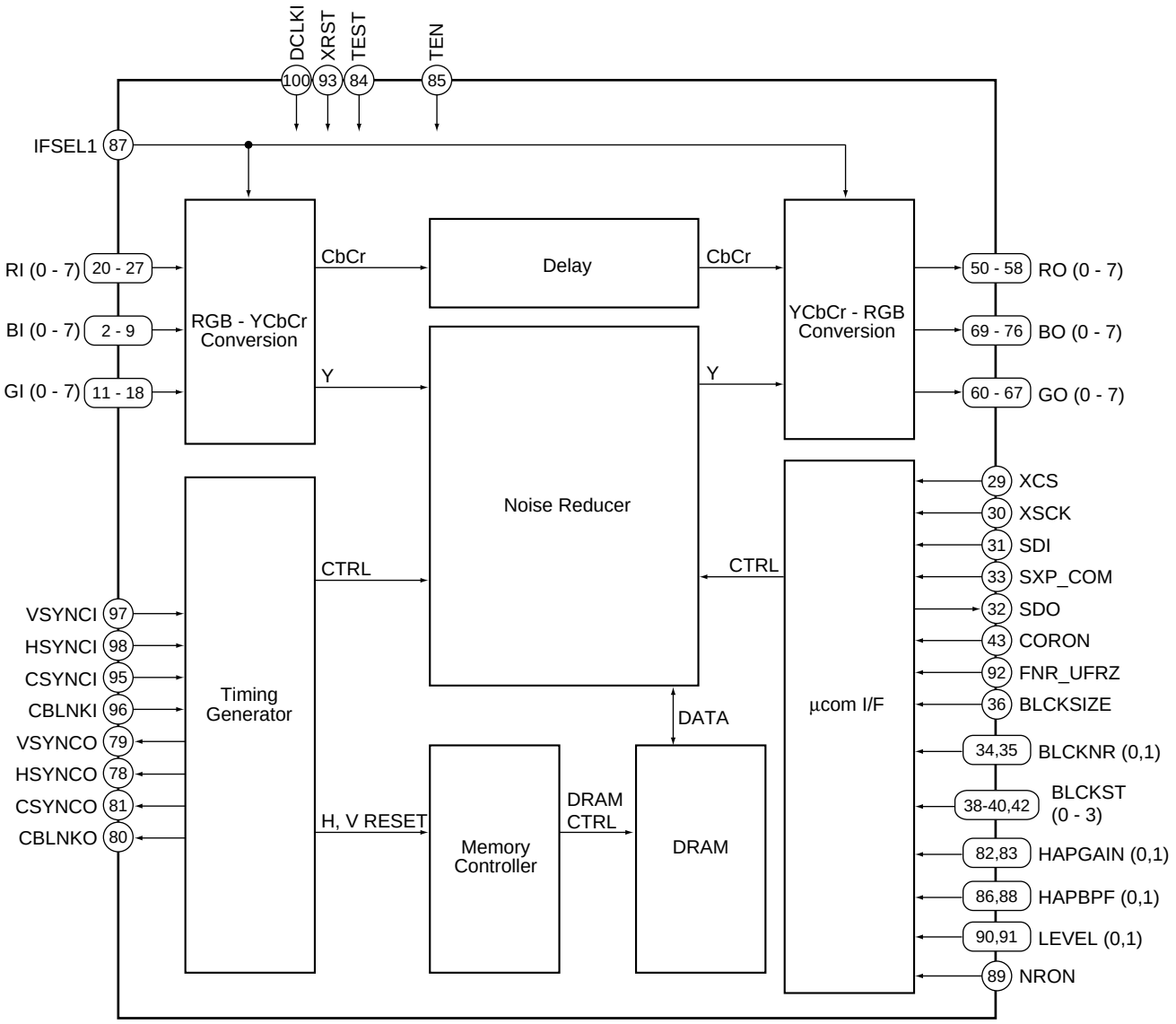
No.	Pin Name	I/O	Function
1	EFMOUT	O	Output the state that was binary-stated value EFM
2	C2F	O	C2 flag output
3	ROMXA	O	CD-ROM data output
4	ROMCK	O	Shift clock output for CD-ROM data output
5	LRSY	O	L/R clock output for CD-ROM data output
6	PP3/SYNC	I/O	General-purpose port input/output / DVD sync. signal input
7	FBUSYB	O	Busy signal output of DSP process operation
8	XTALOUT	O	External system clock output
9	FSX	O	CD 1 frame sync. signal output
10	SBCK	I	Subcode reading out clock input
11	SFSY	O	Frame sync. signal output of subcode
12	PW	O	Subcode P, Q, R, S, T, U, V and W output
13	VSS	–	GND for oscillation circuit
14	XIN	I	Connect a crystal resonator (16.9344MHz)
15	XOUT	O	Connect a crystal resonator
16	DVDD1	–	3.3V power supply of the oscillation circuit
17	EMPH	O	Monitor the deemphasis
18	SBSY	O	Sync. signal output of the subcode block
19	DOUT	O	Audio EIAJ data output
20	EFLG	O	Error correction state monitor of the error correction C1 and C2
21	FSEQ	O	Detection monitor of the CD/DVD frame sync. signal
22	FAST	O	Playback speed monitor
23	V_PB	O	Monitor output of the rough servo/CLV control
24	DRF	O	In focus monitor
25	TEST3	I	Test input 3
26	TES	I	Tracking error signal input
27	TEST2	I	Test input 2
28	JITT	I	Jitter quantity detecting signal input of EFM PLL
29	TILTE	I	Tilt error signal input
30	RF_PH	I	RF peak hold signal input
31	RF_BH	I	RF bottom hold signal input
32	TE	I	Tracking error signal input
33	FE	I	Focus error signal input
34	SLCIST1	–	Current setting pin 1 of the constant current charge pump for SLC
35	SLCIST2	–	Current setting pin 2 of the constant current charge pump for SLC
36	SLCO1	–	Control output 1 for SLC
37	SLCO2	–	Control output 2 for SLC
38	TEST1	I	Test input 1
39	EFMIN	I	EFM/EFM + input
40	AVDD	–	5V power supply of A/D and D/A for servo
41	AVSS	–	GND of A/D and D/A for servo
42	AUXO	O	DA auxiliary output
43	TILTDO	O	Tilt control signal output
44	TBAL	O	Tracking balance control signal output
45	SLDO	O	Sled control signal output
46	SPDO	O	Spindle control signal output
47	FDO	O	Focus control signal output
48	TDO	O	Tracking control signal output
49	VREF	–	Reference level of D/A for servo
50	TEST4	I	Test input 4

No.	Pin Name	I/O	Pin Function
51	HFLIO	I/O	Mirror detection signal input/output
52	LASER	O	Output pin for laser ON/OFF control
53	PP0/DVD_CDB	I/O	General-purpose port input/output / Disc discrimination signal output
54	PP1/CRCERRB	I/O	General-purpose port input/output / Subcode CRC result signal output
55	FG	I	FG counter input
56	PP2/EVENT	I/O	General-purpose port input/output / Event counter input
57	RESB	I	Reset input
58	CSB	I	Chip select input
59	RDB	I	Internal state reading signal input
60	WRB	I	Command / data writing signal input
61	DVDD2	–	5V power supply
62	VSS	–	GND
63	P0	I/O	Command / data input/output
64	P1		
65	P2		
66	P3		
67	P4		
68	P5		
69	P6		
70	P7		
71	VSS	–	GND
72	DVDD1	–	3.3V power supply for internal
73	BUSYB	O	Busy signal output of command process
74	SQOUT	O	Serial output of subcode Q
75	CQCKB	I	Shift clock input for subcode Q data output
76	RWC	I	Update permission input of subcode Q
77	WRQ	O	Read out ready monitor of subcode Q
78	AVSS	–	PLL GND for internal system clock
79	VRPFR	–	VCO oscillation range setting of PLL for internal system clock
80	VCOC	–	Connect a PLL filter for internal system clock
81	VPDO		
82	AVDD	–	PLL 5V power supply for internal system clock
83	PDO1	–	PLL filter connection pin 1 for EFM playback
84	PDO2	–	PLL filter connection pin 2 for EFM playback
85	PDO3	–	PLL filter connection pin 3 for EFM playback
86	AVSS	–	PLL GND for EFM playback
87	PCKIST1	–	Current setting 1 of PLL constant current charge pump for EFM playback
88	PCKIST2	–	Current setting 2 of PLL constant current charge pump for EFM playback
89	AVDD	–	PLL 5V power supply for EFM playback
90	DVDFR	–	VCO oscillation range setting of PLL for EFM playback 1
91	CDFR	–	VCO oscillation range setting of PLL for EFM playback 2
92	JV	O	Jitter output of PLL clock for EFM playback
93	PCK	O	Bit clock output for EFM playback
94	NCP0	–	NC
95	NCP1		
96	NCP2		
97	NCP3		
98	DVDD2	–	5V power supply
99	VSS	–	GND
100	LEFM	O	Output the state that cut and out a signal which was binary-stated value EFM with PCK

■ CXD1854Q (DNRB ASSY : IC101) [DV-S5, DV-05 and DV-717]

• DNR IC

●Block Diagram



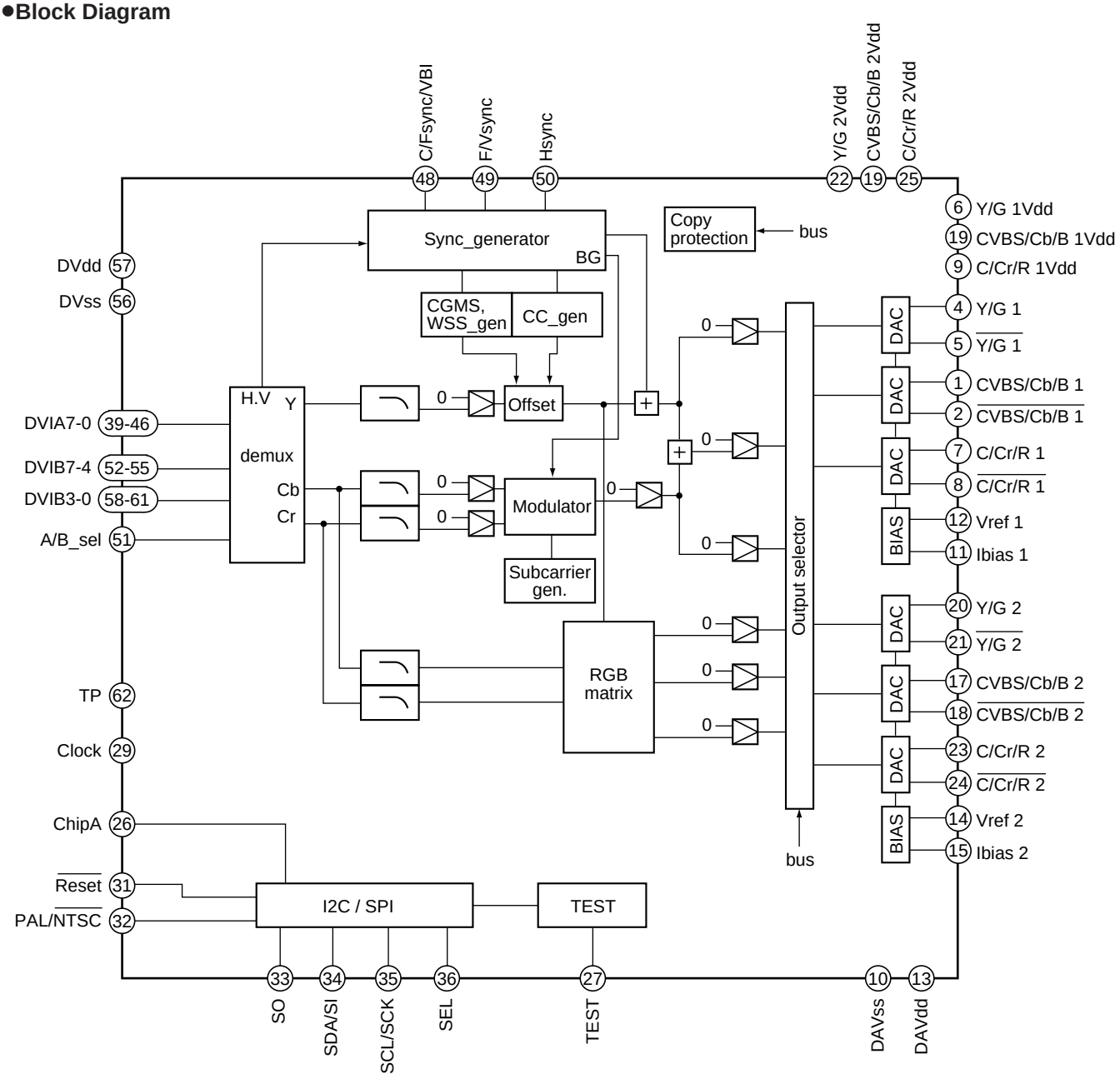
● Pin Function

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
1	VSS0	–	GND	51	RO0	O	[LSB]
2	BI7	I	[MSB]	52	RO1		
3	BI6			53	RO2		
4	BI5			54	RO3		
5	BI4		Connect to GND or B signal input	55	RO4		Cb/Cr (chroma) signal output or R signal output
6	BI3			56	RO5		
7	BI2			57	RO6		
8	BI1			58	RO7		[MSB]
9	BI0		Connect to GND or B signal input [LSB], or 27 MHz clock input	59	VDD2	–	GND
10	VSS1	–	GND	60	GO0	O	[LSB]
11	GI7	I	[MSB]	61	GO1		
12	GI6			62	GO2		
13	GI5			63	GO3		
14	GI4			64	GO4		Y (luminance) signal output or G signal output
15	GI3		Y (luminance) signal input or G signal input	65	GO5		
16	GI2			66	GO6		
17	GI1			67	GO7		[MSB]
18	GI0		[LSB]	68	VDD3	–	Power supply
19	VSS2	–	GND	69	BO0	O	[LSB]
20	RI7	I	[MSB]	70	BO1		
21	RI6			71	BO2		
22	RI5			72	BO3		
23	RI4			73	BO4		Open or B signal output
24	RI3		Cb/Cr (chroma) signal input or R signal input	74	BO5		
25	RI2			75	BO6		
26	RI1			76	BO7		[MSB]
27	RI0		[LSB]	77	VSS5	–	GND
28	VDD0	–	Power supply	78	HSYNCO	O	Horizontal sync. signal output
29	XCS	I	Chip select input for microcomputer interface	79	VSYNCO	O	Vertical sync. signal output
30	XSCK	I	Serial clock input for microcomputer interface	80	CBLNKO	O	Composite blanking signal output
31	SDI	I	Serial data input for microcomputer interface	81	CSYNCO	O	Composite sync. signal output
32	SDO	O	Output for test	82	HAPGAIN0	I	Effect level control input of outline emphasis
33	SXP_COM	I	Input for serial/parallel (H/L) switch of microcomputer communication	83	HAPGAIN1		
34	BLCKNR0	I	Input for effect level control of Block NR	84	TEST	I	Test pin (Pull Down)
35	BLCKNR1			85	TEN	I	Test pin (Pull Up)
36	BLCKSIZE	I	Input for block size switch of Block NR (L: 16 pixel, H: 8 pixel)	86	HAPBPF0	I	Input for correct bandpass control of outline effect
37	VDD1	–	Power supply	87	IFSEL1	I	Y/C and RGB input/output switching signal (L:Y/C, H: RGB)
38	BLCKST0	I	Input for block border position control of Block NR	88	HAPBPF1	I	Input for correct bandpass control of outline effect
39	BLCKST1			89	NRON	I	ON/OFF switching signal of field NR (L:OFF,H:ON)
40	BLCKST2			90	LEVEL0	I	Effect level switching signal of field NR (4-stage)
41	VSS3	–	GND	91	LEVEL1		
42	BLCKST3	I	Input for block border position control of Block NR	92	FNR_UFRZ	I	Input for stick improvement process switch of field NR (L: OFF, H: ON)
43	CORON	I	Input for core-ring control of outline emphasis (L: OFF, H: ON)	93	XRST	I	Reset pin (Pull Up)
44	ADVD	–	Power supply for DRAM (5V)	94	VSS6	–	GND
45	ADVS	–	GND for DRAM	95	CSYNCI	I	Composite sync. signal input
46	NC	–	NC	96	CBLNKI	I	Composite blanking signal input
47	NC			97	VSYNCI	I	Vertical sync. signal input
48	NC			98	HSYNCI	I	Horizontal sync. signal input
49	NC			99	VDD4	–	Power supply
50	VSS4	–	GND	100	DCLKI	I	DOT CLOCK input (13.5 MHz)

MC44724A (DNRB ASSY : IC102) [DV-S5, DV-05 and DV-717]

• **VIDEO ENCODER IC**

●Block Diagram



● Pin Function

No.	Pin Name	I/O	Function
1	CVBS/Cb/B1	O	Analog composite video signal output or Cb or B signal output current drive (positive)
2	$\overline{\text{CVBS/Cb/B1}}$	O	Analog composite video signal output or Cb or B signal output current drive (negative)
3	CVBS/Cb/B1 Vdd	–	Power supply for CVBS / Cb / B DAC1 circuit
4	Y/G1	O	Analog luminance or G signal output current drive (positive)
5	$\overline{\text{Y/G1}}$	O	Analog luminance or G signal output current drive (negative)
6	Y/G1 Vdd	–	Power supply for Y / G DAC1 circuit
7	C/Cr/R1	O	Analog chrominance signal output or Cr or R signal output current drive (positive)
8	$\overline{\text{C/Cr/R1}}$	O	Analog chrominance signal output or Cr or R signal output current drive (negative)
9	C/Cr/R1 Vdd	–	Power supply for C / Cr / R DAC1 circuit
10	DAVss	–	Ground for DAC circuit
11	Ibias 1	O	Reference current for the 1st set of 3 DACs
12	Vref 1	–	Reference full scale voltage for the 1st set of 3 DACs
13	DAVdd	–	Power supply for the DACs
14	Vref 2	–	Reference full scale voltage for the 2nd set of 3 DACs
15	Ibias 2	O	Reference current for the 2nd set of 3 DACs
16	NC	–	Non connection
17	CVBS/Cb/B2	O	Analog composite video signal output or Cb or B signal output current drive (positive)
18	$\overline{\text{CVBS/Cb/B2}}$	O	Analog composite video signal output or Cb or B signal output current drive (negative)
19	CVBS/Cb/B2 Vdd	–	Power supply for CVBS / Cb / B DAC2 circuit
20	Y/G2	O	Analog luminance or G signal output current drive (positive)
21	$\overline{\text{Y/G2}}$	O	Analog luminance or G signal output current drive (negative)
22	Y/G2 Vdd	–	Power supply for Y / G DAC2 circuit
23	C/Cr/R2	O	Analog chrominance signal output or Cr or R signal output current drive (positive)
24	$\overline{\text{C/Cr/R2}}$	O	Analog chrominance signal output or Cr or R signal output current drive (negative)
25	C/Cr/R2 Vdd	–	Power supply for C / Cr / R DAC2 circuit
26	ChipA	–	I2C chip address select (0:40 (hex) / 41 (hex) 1:1D (hex) / 1E (hex))
27	TEST	I	TEST pin (Grounded)
28	DVss	–	Ground for Digital circuit
29	CLOCK	I	27MHz clock input
30	DVdd	–	Power supply for Digital circuit
31	$\overline{\text{Reset}}$	I	Reset signal, active LOW
32	PAL/$\overline{\text{NTSC}}$	I	NTSC/PAL select This pin is sampled only at Reset.(NTSC: Low, PAL: High)
33	SO	O	In SPI mode, serial data output / In I2C mode, Grounded
34	SDA/SI	I/O	Serial data input Open drain output / If SPI mode, serial data input
35	SCL/SCK	I	Serial clock
36	SEL	I	Connect to Ground / If SPI mode, this pin is chip select.
37	DVdd	–	Power supply for Digital circuit
38	DVss	–	Ground for Digital circuit
39 to 46	DVIA7 to DVIA0	I/O	8-bit Multiplexed 4:2:2 data (ITU Rec656/601) input (DVIA), or Multiplexed Y data (ITU Rec656/601) input in 16-bit input mode
47	Vmute	I	Video mute on Reset (0: normal, 1: mute)
48	C/Fsync/VBI	I/O	Csync / Frame sync output, or external VBI information input
49	F/Vsync	I/O	Frame sync or Vertical sync input/output
50	Hsync	I/O	Horizontal sync input/output
51	A/B sel	I	Switch control for 8-bit X2 Multiplexed 4:2:2 data (ITU Rec656/601) input (DVIA) or (DVIB)
52 to 55	DVIB7 to DVIB4	I/O	8-bit Multiplexed 4:2:2 data (ITU Rec656/601) input (DVIB), or Multiplexed Cr/Cb data (ITU Rec656/601) input in 16-bit input mode
56	DVss	–	Ground for Digital circuit
57	DVdd	–	Power supply for Digital circuit
58 to 61	DVIB3 to DVIB0	I/O	Multiplexed 4:2:2 data (ITU Rec656/601) input (DVIB), or Multiplexed Cr/Cb data (ITU Rec656/601) input in 16-bit input mode
62	TP	I/O	Test data input/output (Grounded)
63 to 64	NC	–	Non connection (Grounded)